Paper

OCT. 12, 1951

HOW TO GUARD AGAINST CORROSION . . . Page 24

THE PAPER INDUSTRY AS AN INVESTMENT RISK FOR BANKS . . . Page 42

Lower Cost Black Liquor Evaporation

WITH SWENSON L.T.V. EVAPORATORS Years of operation in kraft and soda pulp mills have demonstrated the economy of this equipment — low first cost, low operating cost, and low maintenance.

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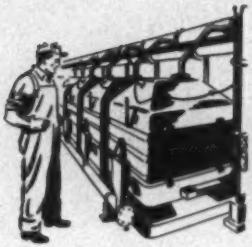

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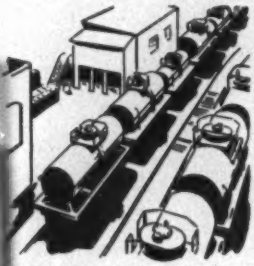

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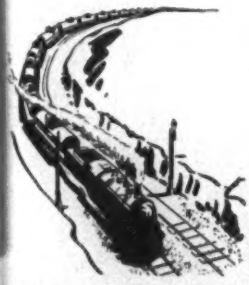

DELIVERY . . . Schedules are planned to meet your production needs. Shipments are checked from point to point en route to insure compliance with delivery schedules.

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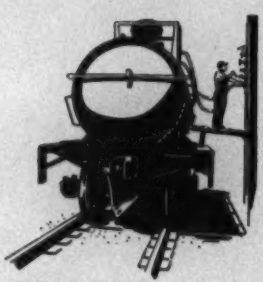
SERVICE is one of the most active ingredients in Hooker Chemicals. Hooker is a compact, flexible organization of experienced people, geared to serve your needs quickly and competently. Briefly, these are the "added dimensions" that follow the shipment into your plant, helping you make the most of the Hooker Chemicals you buy.



TECHNICAL SERVICE . . . offers assistance on problems of unloading, handling, and processing to enable you to use Hooker Chemicals most efficiently, economically and safely.

MODERN RESEARCH . . . backed by years of experience serving the pulp and paper industries, works constantly to find better ways of producing chlorine and caustic soda for paper making.

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BULLETIN NO.

- 201 Process and Equipment for Making Bleach Liquor for Use Without Settling
- 211 Chemistry of Bleaching Chemical Wood Pulps
- 214 What Do We Know About Bleaching?
- 236 Importance of pH and Catalysts in Bleaching Operations
- 242 Production and Use of Unsettled Bleach Liquor
- 243 Procedures and Brightness Grades in Bleaching Sulfate Pulps

From the Salt of the Earth

HOOKER ELECTROCHEMICAL COMPANY

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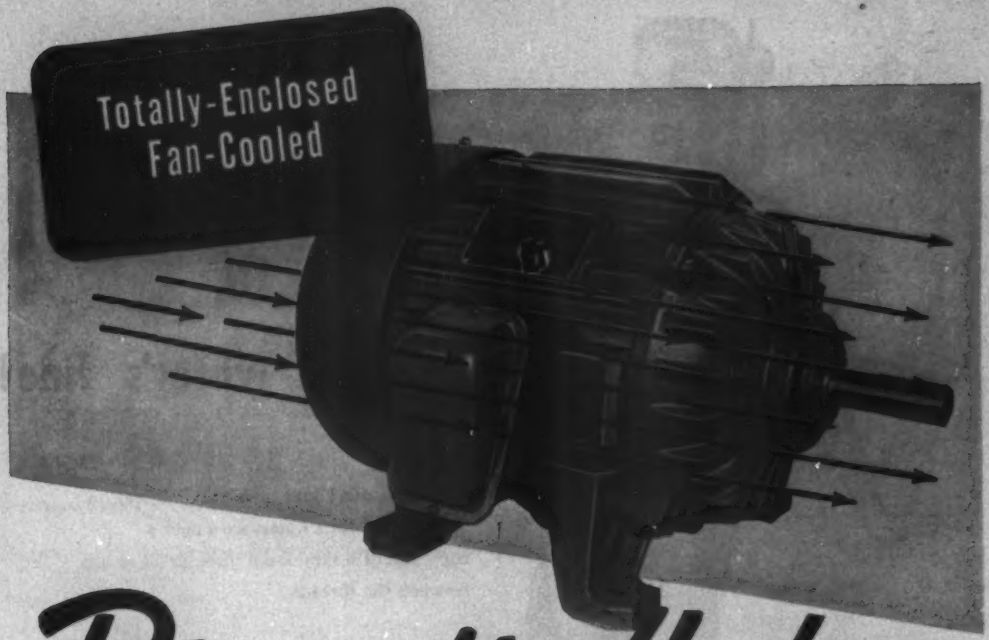
SODIUM SULFIDE • SODIUM SULFHYDRATE • SODIUM BENZOATE • CAUSTIC SODA • MURIATIC ACID • PARADICHLOROBENZENE • CHLORINE



Blows itself clean as a Whistle!

DIRT IS CARRIED AWAY by cooling air blown over the ribbed cast iron frame and bearing housings of this new Allis-Chalmers tefc motor. That means less motor cleaning . . . inspection . . . overhaul!

Concealed air passages and pockets have been eliminated. Dirt can't build up to cause overheating. And as for oily dirt that sticks — just wipe or blow it off.

Studies show that on most applications, totally-enclosed fan-cooled motors more than pay back their extra cost in reduced maintenance. And this new Allis-Chalmers Type APZ tefc motor makes maintenance costs lower than ever before.

Rigid Construction

The frame is cast iron which has high resistance against corrosion and distortion. Bearings are pre-lubricated at the factory and should need no attention for years. Tapped holes with pipe plugs to permit regreasing and to provide grease relief are standard equipment.

Get All The Facts

The new Allis-Chalmers Type APZ totally-enclosed fan-cooled motor is built in all NEMA standard frame sizes from 224* to 505. Also in explosion-proof type. Your A-C Authorized Distributor or District Office has complete information. Call today, or write Allis-Chalmers, Milwaukee 1, Wisconsin. Ask for Bulletin 51B7225.

A-3477

Sold . . .
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CONTROL — Manual, magnetic and combination starters; push button stations and components for complete control systems.

TEXROPE — Belts in all sizes and sections, standard and Vari-Pitch sheaves, speed changers.

PUMPS — Integral motor and coupled types from ¾ in. to 72 in. discharge and up.

Texrope and Vari-Pitch are Allis-Chalmers trademarks.

ALLIS-CHALMERS

*Similar design non-ventilated motors Type APK, also available in frames 203 to 224 inclusive.

HAM FELTZ says:

COME ON IN

...the water's fine!

Wet felts ain't wet until you wet 'em. Some of 'em shed water like a duck's back 'stid of leakin' it out through the spaces between the threads.

My idee of a good wet felt is one that lets the water run through as easy as a fish net.

Naturally that means Hamilton Felts —some folks calls 'em Shuler Felts. I calls 'em durn good felts—as leaky as old shoes and as tough as the hide of an allegator.

From the thinnest tissue to the heaviest board there is a Hamilton Felt that will do your work better, faster and at lower cost.

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SHULER & BENNINGHOFEN, HAMILTON, OHIO

ABC

Paper TRADE JOURNAL

ABP

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NEXT WEEK

How big—how many? That is the question! The engineering approach, by J. G. Wilson, helps give the answers.

Steel is scarce! The most important steel you use is in knives. How can you get the most out of them? Read Careful Grinding Pays Dividends, by E. T. Larson.

REMEMBER THESE DATES

OCT. 15-18: 6th Engineering Conference, Technical Assn. of Pulp and Paper Industry, General Oglethorpe Hotel, Wilmington Island, Savannah, Ga.

OCT. 25-26: Technical Assn. of Pulp and Paper Industry, Plastics Conference, State University of New York, College of Forestry, Syracuse, N. Y.

OCT. 29-31: National Foreign Trade Convention, Waldorf-Astoria, New York City.

NOV. 26 to DEC. 1: 23rd Exposition of Chemical Industries, Grand Central Palace, New York, N. Y.

DEC. 2-5: American Institute of Chemical Engineers, Annual Meeting, Chalfonte-Haddon Hall, Atlantic City, N. J.

FEB. 18-19: Salesmen's Assn. of the Paper Industry, Annual Meeting and Luncheon, Waldorf-Astoria, New York, N. Y.

FEB. 18-21: Technical Assn. of Pulp and Paper Industry, Annual Meeting, Commodore Hotel, New York, N. Y.

MARCH 16-18: American Institute of Chemical Engineers, Atlanta Biltmore Hotel, Atlanta, Ga.

MARCH 24-26: The National Paper Trade Assn., Annual Meeting, Waldorf-Astoria, New York, N. Y.

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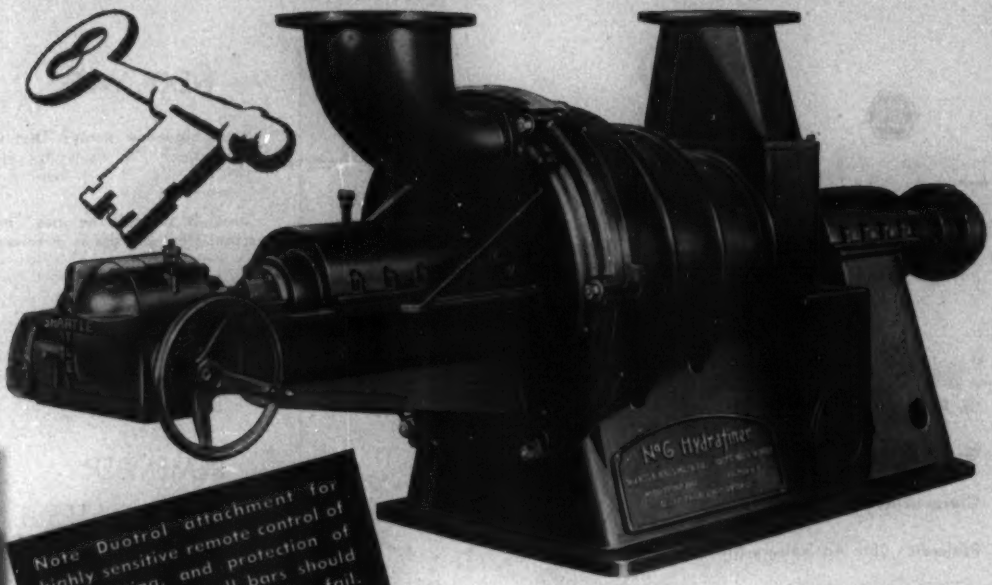

Note Duotrol attachment for highly sensitive remote control of plug setting, and protection of both plug and shell bars should stock flow for any reason fail.

KEY MACHINE of effective refining systems

The Keystone of the Modern Refining System is the HYDRAFINER.

The ability of the HYDRAFINER to develop the fiber to its maximum inherent strength without cutting or reducing its length is truly remarkable.

That is why stock produced in HYDRAFINER Systems—systems with correct chest design, correct flow conditions and accurate control—can be formed into higher strength and higher quality grades.

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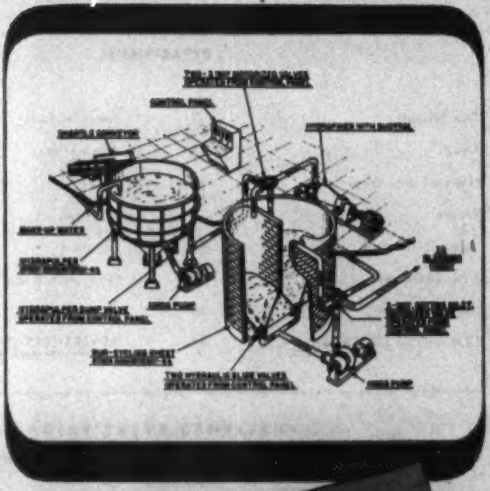
Mills interested in improving the quality of their grades will profit by investigation of Shartle HYDRAFINER Systems.



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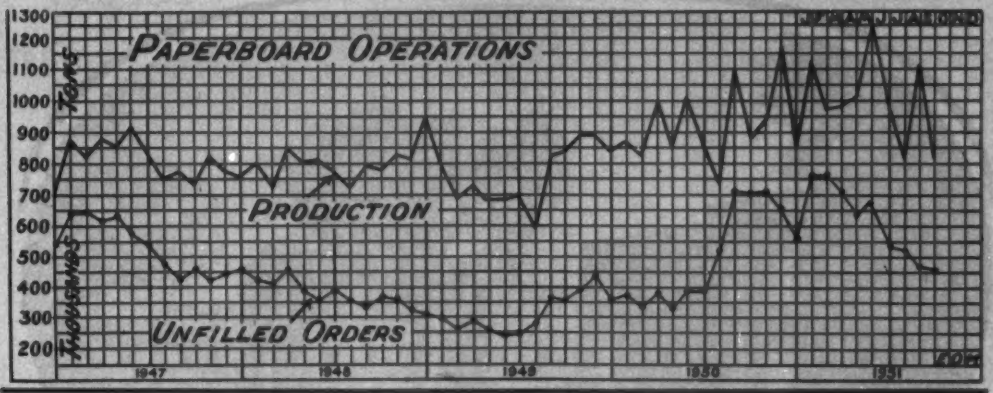
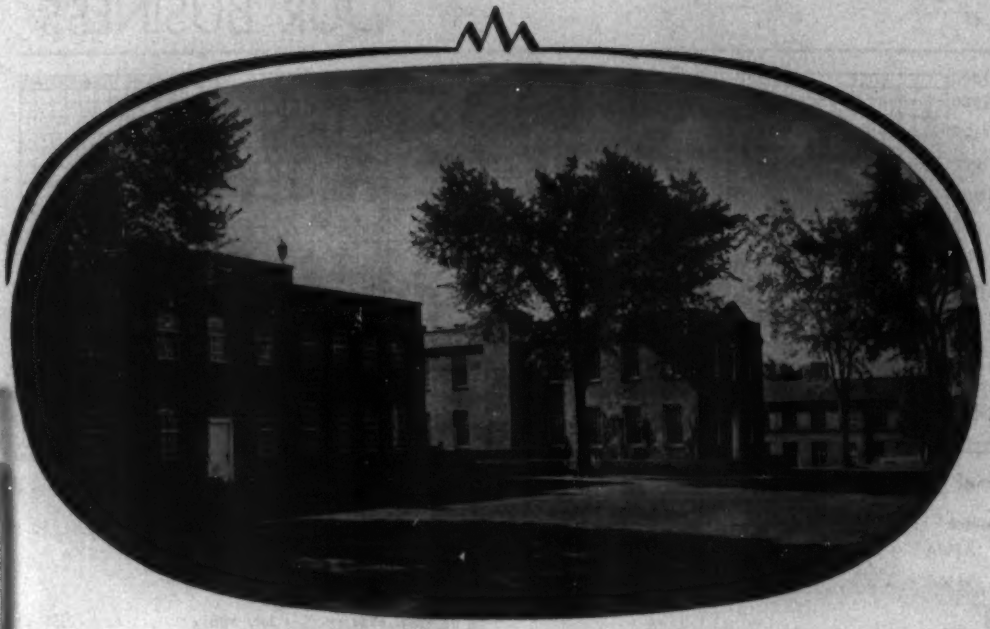


Brief of Important Figures

Source		WEEK ENDING Sept. 29, '51	Sept. 1, '51	Sept. 30, '50
APPA	Paper Production Percent Capacity[6]	100.6	95.3	100.6
	Unbl. Kraft Paper Production Percent	101.8	97.7	98.6
NPA	Paperboard Operating Ratio Percent Inch Hours	90	93	103
		Aug. 1951	**July 1951r**	**Aug. 1950**
APPA	Paper Production[6] (Except Newsprint and Building Papers) ....Tons	925,500	808,000	865,000
	New Orders ....Tons	875,000	848,000	979,000
	Unfilled Orders ....Tons	1,001,800	1,035,765	863,500
	Shipments ....Tons	906,000	796,000	873,500
		Sept. 1951	**[4]Aug. 1951**	**Sept. 1950**
NPA	Paperboard Production ....Tons	816,356	1,112,731	877,945
	New Orders ....Tons	825,249	1,081,321	872,012
	Unfilled Orders ....Tons	458,150	470,841	714,877
	Our Customers Activities Index[1]	**Latest Mo.[5]**	**Previous Mo.[5]**	**Year Ago[5]**
FRS	Manufactures Total Index	223	233	207
	Durable Mfg. Index	264	276	237
	Nondurable Mfg. Index	191	197	182
	Chemical Products Index	302	300	259
	Mfg. Food Products Index	177	165	178
	Printing and Publishing Index	159	172	150
ODC	Magazine Advg.-Printer's Ink Index	368	350	316
	Retail Sales Combined Adjusted Index	347.4	342.6	354.7
	Drug Index	236.6	234.9	221.2
	General Merchandise Group Index	329.6	322.2	369.7
	Grocery and Combination Index	446.2	439.4	410.9
	Prices Index			
BLS	Consumers Price Index[1]	185.5	185.2	172.0
	Wholesale all Commodities[2]	179.5	181.8	162.9
	Wholesale Foods[2]	186.0	186.3	171.4
	Commodities other than Farm Products and Foods[2]	168.7	170.6	151.6
	Wholesale Pulp and Paper[2]	197.2	196.2	159.8
	Purchasing Power of Dollar, Consumers Prices[1]	53.9	54.0	58.1
	General Activity Index			
FRS	Mfg. Production-Worker Payroll	429.4	435.7	367.5
	Unemployment Compensation Initial Claims (M)	1,086	1,118	971
	Miscellaneous Carloadings-Thousands of Cars	1,454	1,937	1,433
	Electric Output (Million KW hr.)	35,435	34,966	31,626
PTJ	Average 32 P & P Common Stocks as of Oct. 6	$40.97	$39.53	$36.55

[1] 1935-39=100 Unadjusted Index
[2] 1926=100
[3] New 6-7 day basis.
[4] For Five Weeks.
[5] For details see APPA Monthly Statistical Summary—August 1951 Estimated Figures
[6] Latest Month Available on Request
r Revised figures



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Paper TRADE JOURNAL

TRENDS

Office of the Paper Trade Journal,
Wednesday, October 10, 1951.

Most obvious of today's industry trends is the easing in fibrous materials supply as a result of lighter demand, inventory adjustments, and an increasing flow of raw stuffs.

Waste Paper Slides Again

Notably hit by recessive demand from paperboard mills is the waste paper market. A lag which started last Spring in set-up and folding boxboards gathered size as jute corrugated demand fell off and marginal mills withdrew from production. It snowballed further with cutbacks in business demand for cartons and containers, and became a general slide as Government agencies deferred orders for V-boards and liners, now stockpiled in huge volume.

Output of the industry's bellwether —paperboard—lagged to 90 percent of capacity during the last weeks in September, compared against 103 percent for September, 1950 and with the year's average of 99 percent.

The Midwest area is reported to be sharply hit by curtailed production of civilian items, as well as by the lag in Government buying. Most mills are running three or four days a week. Marginal producers are shut down.

In the local New York area, one of the largest producers has been out on strike since August. A few other mills are on six-day production to take up the slack for his customers. Others are cut back to an average of three to four days. Production is rated about 30 percent less than that of six months ago.

Few mills are buying waste papers. Inventories which stood at 547,295 tons, industry-wide, in July compared with 490,899 tons in June, (according to the Bureau of the Census) are at the highest level since 1942. Storage space is taxed to capacity at a time when demand is off and prices tumbling. Waste paper buying is being held to a minimum and high-priced stocks worked off.

Bulkies and Kraffs Weakest

Also clipping waste paper prices is the abundant supply of unbleached kraft pulps.

In short supply for many months because of heavy demand for cartons, containers, liners, etc., unbleached kraffs, of the lower grades now find no buyers. This is said to be particularly true of the 3 percent *wetlap* reserves offered by integrated producers in accordance with the requirements of NPA's woodpulp order, M-72.

New kraft envelope and bag cuts last week were dropped $20 to $30 a ton in all markets. Quotations in the specially weak Philadelphia market at $125 compare with the January 16 price of $160/175 for envelopes. Kraft corrugateds, 100%, in the same market were ranging around $80, compared with $125/135 in January; and double kraft lined corrugated cuts at $50, compared with $105/110. This latter grade is soft at $50 in the Philadelphia area, though to press time priced somewhat higher in other markets.

No. 1 old brown kraft has become a casualty to down-grading. Quality is so uncertain that this grade has no market. Superresorted, generally referred to as *triple-sorted*, is now graded as a No. 1 and has no assured market because of general market weakness.

However, in naming any prices on such a market dealers emphasized that quotations mean little. All are harried for storage space; there is no buying to speak of; no orders; and how can one determine what a deal will bring should a mill make an offer.

Low Grades Lopped $2

Prices of low grades were lopped $2 again last week to $14 for mixed, $16 for *news*, mill basis, f.o.b. cars. These prices compare with $32/35 for mixed at GCPR levels in January, and with $37/41 for *news*. Old corrugated containers at press time was dropping further to meet Philadelphia and Chicago prices of $18/20, is being quoted in New York at $20/24. In the Philadelphia market area, where this grade is in glut condition, dealers tell of mills piling it in the fields for want of warehouse space, also of 10 cars seeking a buyer at $13/14 a ton, f.o.b. Philadelphia.

To the serious-minded of the paper and board industry, such prices are a calamity. True the waste paper market is known for its feast or famine conditions, and today's glut is no phenomenon. But when peddlers do not get a fair return for *news* and old corrugated collections, they divert to other activities. When a need is developed for old paper stock, the flow has been stifled and the work must be done all over again.

Chicago Waste Paper Prices

	Jan. 4	Oct. 2
No. 1 Mixed Paper	$35.00	$19.00
Boxboard Cuts	38.00	
Mill Wrappers	55.00	
No. 1 News	38.00	15.00
Over-issue News	41.00	18.00
Corrugated Containers	52.00	20.00
New Corrugated Cuts	62.00	
Double Kraft Ld. Corr. Cuts	120.00	55.00
100% Kraft Corr. Cuts	135.00	85.00
Used Kraft Bags	65.00	50.00
No. 1 Brown Kraft Paper	65.00	
Super Resorted Br. Kraft	90.00	50.00
New Br. Kraft Env. Cuts	150.00	100.00
New Br. Kraft Cuts	140.00	90.00
No. 1 Gdwd. Shvs.	75.00	35.00
White Newsblanks	115.00	35.00
No. 1 Flyleaf Shvs.	110.00	60.00
No. 1 Soft Wht. Shvs.	175.00	125.00
Super Soft Wht. Shvs.	185.00	135.00
Hd. Wht. Shvs.	180.00	140.00
Hd. Wht. Env. Cuts	190.00	150.00
New Manila Env. Cuts	115.00	65.00
Col. Tab Cards	100.00	85.00
Manila Tab Cards	165.00	100.00
No. 1 Mixed Ledger	100.00	95.00
White Ledger	125.00	110.00
No. 1 Book & Mag.	35.00	17.00
No. 1 Rep'd. Hvy. Books	55.00	40.00

Easing Noted in Hard Whites

Similar easing is reflected in other pulp substitute grades: hard white envelopes, hard white shavings, soft whites, etc. Ledgers also are weaker. Manila tab cards, once a much- wanted item, are sloppy. New manila envelope cuts are hard to find as a grade, and are being packed with kraffs. Groundwoods and flyleafs are in easy supply, looking for an offer. White newsblanks are in adequate supply.

Midwest Depressing Market

Though weakness in the waste paper industry is countrywide, its source is believed to be in the Chicago area which is depressing all areas.

Latest prices carrying an October 2 dateline are compared with the January (GCPR level) prices for study. The market is so weak that the floor continue to sag and new prices are reported daily.

Trends to Watch

Luxury Packaging Exit?—As recently noted in this column, Europeans are cutting back the use of *luxury packaging* because of high costs of paper and packing materials. This trend is noted in a *New York Times* advertisement of a French perfume at a "Why pay-for-the-package price?" With excise taxes on cosmetics and perfumes a sales retardant, this sales argument could develop to no small proportions.

Lighter Weight Book Papers.—New mailing rates for magazines and advertising will see a move to lighter weight publication papers. To some minds, this means an increase in demand for a supercalendered sheet, a diversion already made by some of the weeklies. Other publishers prefer to retain the machine-coated sheet but will use a lighter-weight sheet.

Market Pulp Supply.—Also in the wind are quiet moves by and for market pulp consumers which would secure a supply of bleached sulfites and other pulps when the Scott-Soundview merger takes from the market 200,000 tons, annually, of bleached sulfites; also should Scandinavian tonnages be lost to these same mills as a result of a probable rollback in overseas pulp prices to the Canadian level.

—E. P. N.

Paperboard Production (Tons)*

	Sept. 29 1951	Sept. 22 1951	Sept. 30 1950	Month of Sept.
Production	218,174	214,310	236,422	816,356
New Orders	216,321	155,900	253,120	825,249
Unfilled Orders	458,150	475,963	714,877	458,150
% of Activity	90	90	103	

* Source: NPA.

AT PORT ALBERNI, B.C.

Productive Log Barking

is "teamed up" with

ADAMS

Automatic WATER FILTERS

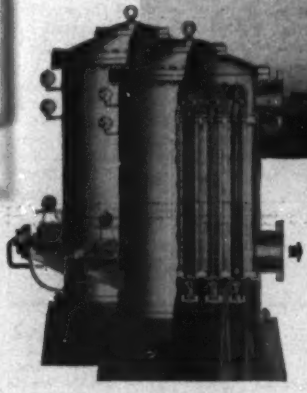
To convert raw water into a tool that blasts bark from logs of any shape or size, *Bloedel, Stewart & Welch* installed a matched team of Adams Automatic Water Filters ahead of their new Hansel hydraulic barkers.

Of critical importance in the barker's continuous, fast production and low maintenance are the films of lubricating water for seal rings as well as for main and thrust bearings. Complete removal of abrasive solids from the Port Alberni water source was necessary if precision-machined surfaces in both the barker and the high pressure pumps were to deliver full performance.

Experiment under actual conditions proved the need for a filter that would not only remove all solids down to 40 microns, but would backwash automatically — a clear case for the Adams AWF Filter with exclusive Adams Poro-Stone Filter tubes. "... Adams filters were installed and are performing admirably", states B. S. & W. resident manager.

If you would convert water — your cheapest raw material — into an efficient production tool for pulp, paper, and saw mills, it will pay you to investigate the R. P. Adams line of water filters now.

Send today for new 20-page, file size Bulletin No. 691 on Water Filtration in the Pulp and Paper Industry.



ADAMS AWF WATER FILTERS

HANSEL 60" RING BARKER

R. P. ADAMS CO., INC.

231 E. PARK DRIVE BUFFALO 17, N. Y.

News of the Week

Paper TRADE JOURNAL

POWELL RIVER CONSOLIDATION

OTTAWA — The consolidation of Powell River Co., of British Columbia, with several other companies has been completed, these including British Columbia Manufacturing Co., Ltd., Westminster Shook Mills Ltd., Maple Ridge Lumber Co., and Salmon River Logging Co.

ST. REGIS ADDITIONS

St. Regis Paper Co. has just started construction of an addition to its multiwall bag plant at Pensacola, Fla. The new capacity is expected to be available for production late in 1952.

The company also reports good progress in its construction of a new bag plant at Tacoma, Wash., which will replace the leased bag plant which the company is presently operating at Seattle. The new bag plant at Tacoma is being built as an addition to the company's kraft paper mill there and when completed will provide the company with a completely integrated operation at that center. The new plant at Tacoma is expected to be in operation early next year.

FLINTKOTE EXPANSION

Flintkote Co. has broken ground for a $3 million plant at San Leandro, Calif., for its Pioneer Division.

Units under construction include a one-story steel and concrete block building for the manufacture of corrugated shipping containers. The 134,400-square-foot structure will house an 80-inch corrugator with 500-foot-a-minute capacity and printer-sloters, stitchers and tapers.

A second building, with 32,400 square feet of floor space, will be equipped to turn out paperboard at a rate of 100 tons a day.

The San Leandro plant is expected to begin operations in August, 1952, with a working force of 200.

NEW WATER TREATING SYSTEM

A permit to build a water treatment system consisting of a pump house and settling tank at an estimated cost of $100,000 has been issued to the Interlake mill of Consolidated Water Power and Paper Co.

An increase in bleaching capacity and the need for more treated water is the reason for the new system. Building will begin as soon as materials can be obtained.

50th Anniversary Float

Great Northern Paper Co.'s float which was entered in the 50th anniversary celebration of the Town of Millinocket, Maine.

MORE ABOUT ALBERTA PULP

OTTAWA—Still in the planning stage is a $20 million pulp mill to be set up in Red Deer, Alberta. The project is to be backed by United States interests without public financing and the bulk of the paper as well as other products is to go to U. S. midwest markets. The site was chosen since it has available nearby natural gas, water, saltcake and caustic in needed quantities.

The mill will use the sulphate process and turn out some 200 tons of bleached sulphate daily, with a 2,000 sq. mile forest limit within less than 100 miles of the site providing material needed for operations.

Alberta Pulp Mills, has been incorporated by provincial charter as a private company. While no decision about immediate start on construction has been announced, if such a start is made without delay, operation of the mill should begin about the end of 1953 or early in 1954.

NEW SULPHUR PLANT

An order has been placed with Foster-Wheeler Ltd., 159 Bay Street, Toronto, for fabrication of a plant to extract sulphur in an elemental form from hydrogen sulphide found in natural gas in the Turner Valley area.

Owner of the proposed plant is Royalite Oil Co. Ltd., 239 6th Avenue West, Calgary.

The plant, to cost $350,000, will be in operation producing 30 tons of sulphur per day by next April.

FTC DECIDES AGAINST NPTA

Upon receipt of information that a Trial Examiner for the Federal Trade Commission had recommended the issuance of a cease and desist order against National Paper Trade Assn. and its members in a Federal Trade Commission proceeding pending since 1948, Edward P. Magel, President of the National Paper Trade Assn., made the following statement:

"Issues raised by the Federal Trade Commission complaint are largely moot. We understand that the proposed order would direct us to cease and desist from the publication of two statistical compilations of paper merchants' past pricing experiences, popularly known as the Blue Book and Brown Book. Publication of both these statistical compilations was discontinued more than two and one-half years ago. Similar statistical information has been upheld as lawful by a long line of United States Supreme Court decisions over more than a quarter of a century.

"Since, for practical purposes, the issues raised by the complaint were largely moot, the case was submitted to the Trial Examiner on the basis only of documents selected by Federal Trade Commission agents. There is nothing in this documentary record which shows any agreement to fix any prices among the thousand-odd merchants, whose businesses are essentially local enterprises located in numerous local markets throughout the country east of the Rocky Mountains.

"We shall, of course, study the opinion before deciding whether to seek review by the whole Commission."

FOREST FIBER EXPANDS

Output of hardboard at the Forest Fiber Products Co., Forest Grove, Ore., will be doubled in the next three months as new equipment just installed goes into full use. More than 2,500,000 square feet of hardboard a month will be added to production at the 27-month-old mill.

New equipment includes ten five-ton plates so that 20 panels of hardboard will be pressed in a single operation; pulp making unit, conveyors, chip handling and piling machinery, and an outside 500-ton chip storage bin.

RAYONIER CLOSES SAWMILL

On September 29 Rayonier Inc. sent out letters to its employees in Grays Harbor, Wash., announcing the closing of its Hoquiam sawmill, effective December 31.

G. M. Rhebeck, manager of the company's timber division, said the action was taken because the mill is obsolete, and the company feels it should use its timber resources for pulp production rather than rebuild the mill to put it on a competitive basis.

The sawmill employs 225. Thirty-three employes are eligible for retirement, and the company will try to transfer the others to other phases of the company's production or find employment for them elsewhere.

The mill was built in 1881 and was the first large sawmill in the Grays Harbor area. It burned down in 1896 and was rebuilt the following year. In 1934 the Polson Logging Co. acquired the mill, and Rayonier Incorporated took it over in the Polson purchase late in 1948.

NEW McLAURIN-JONES PLANT

McLaurin-Jones Co., Brookfield, Mass., gumming and coating firm has acquired a 10-acre site in Homer, on which building construction will start immediately.

The Southern unit will contain the company's first manufacturing unit for a new line of polyethylene-coated products. Its complete line of gummed tapes will also be manufactured at the plant and construction will allow for the installation of equipment to produce both flat gummed and coated papers, should this be desirable in the future.

At the outset, McLaurin-Jones plans to confine operations in the Homer plant to polyethylene and gummed tapes.

WHIPPANY STILL ON STRIKE

The second meeting of union and management on October 2 failed to bring a settlement in the nine-week strike of three UPW locals at the Whippany Paper Board Co. plant at Whippany, N. J., and at its Clifton plant. A three-hour meeting was held at the Newark offices of the state mediation service.

President of Local 297, UPW, said the company turned down all of the union's wage and hour proposals. The union is seeking a 15-cent-an-hour increase and other employe benefits.

A third settlement attempt will be made November 1 in Newark.

SHIPSHAW DEVELOPMENT

OTTAWA—The new 70,000-hp. hydro development on the Shipshaw River near Price Bros., & Co., Ltd., in Quebec is expected to be in operation before the end of 1953. The completion of this project, at an estimated cost of approximately $12 million will provide the company with an assured supply of sufficient primary power at a probably low cost.

HOLD PORT FEES ILLEGAL

The Port of New York Authority ruled October 3 that extra charges on Swedish wood pulp imposed by five Swedish steamship lines are "illegal and discriminatory."

In a brief filed with the Maritime Board, the Authority urged that it order the charges discontinued. Extra charges of 50 cents a ton on Swedish wood pulp delivered to Port Newark and $1 a ton for delivery to other points in New York harbor have been imposed, according to Donald V. Lowe, chairman of the Authority's committee on port planning.

Tonnages of imported wood pulp have been diverted to other ports as far south as Norfolk and Newport News and as far north as Portland, where penalty charges are not levied despite the fact that ships must travel hundreds of additional miles to reach many of the preferred ports.

The obvious reason for the rate penalty against the New Jersey–New York port is to force the wood pulp tonnage to other ports where shipping lines may take advantage of such free terminal facilities and services as dockage, clerking and the checking of shipments, at piers controlled and operated by railroads and others.

It is manifestly unfair for shipping lines to be permitted to contend that costs are higher in New York because terminal operators at other ports give away their services.

"The general practice of all shipping lines," Mr. Lowe pointed out, "calls for the same level of rates for all North Atlantic ports. Wood pulp carried in the Swedish and Finnish trades is the only exception. There is no justification for the illegal and discriminatory penalty charges that have caused a sharp drop in the volume of wood pulp handled at our port."

He reported that in 1949 imports of wood pulp from Sweden to North Atlantic ports totaled 241,511 long tons, of which the New York customs district handled 63,586 tons, or 26 percent. In 1950, tonnage rose to 366,716 tons but the New York district handled only 63,181 tons, or 17 percent.

MAXON GETS ROME CONTRACT

Construction of the new multi-million dollar container board mill on the Coosa River at Rome, Ga., will begin immediately, it was announced by Al H. Mahrt, president of the Rome Kraft Co., a newly organized corporation of Rome, Ga. The new company is owned by The Mead Corp., Dayton, Ohio, and the Inland Container Corp., Indianapolis, Ind., owners of the Macon Kraft Co., Macon, Georgia.

Engineering will be by the company's own engineering staff. The contract for construction of the mill has been awarded to the Maxon Construction Co., Inc., construction engineers and general contractors of Dayton, Ohio. The construction schedule calls for completion within twenty-four months.

The new mill will require an investment of over $25 million and will provide employment for 650 men and women. Approximately 350,000 cords of pulpwood will be procured annually from Northwest Georgia and parts of Tennessee and Alabama, furnishing additional employment for 1200 people in the various woods operations.

NATIONAL CONTAINER CONTRACT TO MERRITT-CHAPMAN

National Container Corp. has awarded to Merritt-Chapman & Scott Corp. a contract for the design, construction and equipment of a 500-ton per day kraft pulp, board and paper mill to be erected near Valdosta, Ga.

A Construction Fund of $22,100,000 has been deposited with the Marine Midland Trust Co. of New York as Fiscal Agent for the project. The corporation received $31,260,000 from the recent sale of $20 million principal amount of 4½% Fifteen Year debentures and 480,000 shares of $25 par value $1.25 convertible preferred stock recently authorized by its stockholders. From the proceeds, the corporation created the Construction Fund, used $6,422,000 to prepay mortgage notes due March 1, 1964 held by Metropolitan Life Insurance Co. and added the balance to working capital.

The new mill at Valdosta is designed to include the latest machinery and equipment, and it will add nearly 50% to the company's production capacity of kraft pulp, board and paper. Last year the company's four kraft pulp mills, the largest of which is at Jacksonville, Fla., produced approximately 300,000 tons. The Valdosta mill, construction of which has been started, is being built under a Government Certificate of Necessity permitting the company to amortize for income and excess profits tax purposes 60% of the cost, not exceeding $23,165,000, over a five-year period.

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NIAGATHAL* (Tetrachloro Phthalic Anhydride)

PEOPLE

WILLIAM G. HENRY, formerly carton sales manager at United Board and Carton Corp., Syracuse, N. Y., has been named manager of the company's entire carton sales division.

ARTHUR J. GOETZ has been elected to the office of executive vice-president of River Raisin Paper Co., Monroe, Mich. Mr. Goetz has held the office of vice-president in charge of purchases since 1947 and has been with the company since 1922. J. W. WALTER was elected to the office of vice-president for finance. Mr. Walter has been secretary-treasurer of the company, and will continue to hold that office. Mr. Walter started with the company in 1921 when the River Raisin Paper Co. purchased the Monroe Corrugated Box Co., with whom Mr. Walter was affiliated. H. R. McGOVERN was elected to the office of vice-president for manufacturing. Mr. McGovern has held the position of General Superintendent of the company's container plants for a good many years and in his new position will head all of the company's manufacturing operations. He has been with the company since 1921.

EDWARD NISSEN, a 1944 graduate of the College of Forestry, Syracuse University, has joined the Nekoosa mill operating staff. Since his graduation he has been a chemist in the kraft mill of the Camp Manufacturing Co., Franklin, Va.

WILLIAM W. TOLLEY, formerly with U. S. Gypsum Co., Chicago, has joined the purchasing department. His background includes work as production engineer for Aluminum Co. of America, Edgewater, N. J. He joined U. S. Gypsum as an assistant buyer, and was later named buyer dealing with procurement and purchasing of chemical raw materials. Before coming to Nepco he was manager of the firm's packaging department.

WILLIAM J. OLESON, JR., controller of Brown Co., Berlin, N. H., has been elected to membership in the Controllers Institute.

THEODORE I. MONTELIN was recently appointed maintenance engineer for the Brown Co.

GEORGE F. ABELEIN, was elected a director and vice-president of White & Wyckoff Co. at a meeting of the board of directors. Mr. Abelein is celebrating his 40th anniversary with the company. For many years he has been merchandising manager and in that capacity had developed new lines for the company.

ROBERT A. BONSALL was recently appointed chemical engineer for Brown Co.

JOHN B. PORTER, comptroller of the Union Bag & Paper Corp., New York, has been elected to membership in the Controllers Institute. Established in 1931, the Institute is a non-profit organization of controllers and finance officers from all lines of business.

PETER A. CLARKE, Chicago, has been named Milwaukee district sales manager for the Scott Paper Co., Chester, Pa.

H. P. BURBANK has been named general manager for personnel and public relations, and W. L. GIVEN manager for industrial relations of Brown Co.

DR. ELWOOD V. WHITE has been appointed a Research Associate and Group Leader in the field of Carbohydrate Chemistry at the Institute of Paper Chemistry, Appleton, Wis.

Dr. White received his undergraduate training at the University of Toronto and during his graduate training worked under Dr. Harold Hibbert at McGill University. From 1936 to 1938, he was a research chemist at the Dow Chemical Co., Midland, Mich. He then went to the University of Idaho, where he was Associate Professor of Wood Utilization (1938-1943) and then (1943-1948) Professor of Forestry. During the academic year 1948-1949, Dr. White was visiting Professor of Carbohydrate Chemistry at Washington State College. He then was appointed Professor of Chemistry at the University of British Columbia, which position he held until he came to the Institute this year.

DONALD S. LESLIE, first vice-president and general manager of Hammermill Paper Co., Erie, Pa., was elected to the board of trustees of the Institute of Paper Chemistry, Appleton, Wis., for a three-year term. Mr. Leslie is also a vice-president of the American Paper and Pulp Assn.

LAWRENCE WILKINSON and E. R. VAN METER were elected vice-presidents of Contintal Can Co.

Mr. Wilkinson has resigned his position as director of the New York Civil Defense Commission to accept the Continental Can Co. post. As a vice-president, he will be assistant to the chairman of the board.

Mr. Van Meter has been general manager of the company's Paper Container Division since August 1950 and will now be vice-president in charge of the division. He has been associated with Continental since 1944 and was sales manager of the paper container section before becoming general manager.

HAROLD MOLEY, formerly of the Brown Co., has joined the Paper Corp. of United States. Mr. Moley will be the manager of the Industrial Paper Division, directing the sales and development of specialties and industrial papers for the jobbing and converting trades.

IRVING C. BARNES of the Strathmore Paper Co., West Springfield, Mass., has been appointed a member of the Committee on Research of the National Assn. of Cost Accountants. Mr. Barnes, who is a past president of the Springfield Chapter of the National Assn. of Cost Accountants, is head of the Cost and Statistical Department of the Strathmore Paper Co. and has been connected with Strathmore since 1920, following initial experience in banking.

JAMES P. DUFFY, director of Flexible Packaging Sales for Union Bag & Paper Corp., has been elected president of the newly formed National Flexible Packaging Assn.

JOHN B. KOHL, who was recently named general sales manager of Northern Paper Mills, has announced the appointment of JOHN C. FOGARTY and O. A. ECKHARDT as his assistants.

ROBERT J. TUREK will function as advertising manager to complete the sales department staff.

Mr. Fogarty began work for Northern in 1935, joining the sales organization a year later. Mr. Eckhardt joined Northern's sales force in May, 1922 and in January, 1923 took charge of the Wisconsin Territory as District Sales Manager. Mr. Turek joined Northern's sales department in June, 1940, and has operated in the capacity of assistant advertising manager. Associated with him in Northern's advertising function is RAYMOND W. PATTERSON who recently entered Northern's employ.

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No Johnny-come-lately, Monsanto Mersize has been hard at work *for years* cutting sizing costs. And, *for years* this proved sizing agent has saved mill men more than $1,000,000 annually.

And that's only a beginning. On all types of paper and board, Mersize
saves three cents on every pound of rosin
...saves over $1 per ton of paper or board
...cuts sizing costs one-third.

It's only good common "cents" to use time-tested Mersize in your plant. To take full profit-advantage of Monsanto's years of experience with chemical sizes and application know-how in the mill.

There's Mersize CD-2, for better sizing against water solutions than any other engine sizing agent—and Mersize RM, a new Mersize-rosin combination with additional advantages in ease and economy of handling.

Write today for full information.

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CHEMICALS—PLASTICS

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GOVERNMENT GOSPEL

Magazine Paper Conservation Formula

The Magazine Industry Advisory Committee has recommended that the NPA explore with the Department of Justice possibilities of drafting a formula for paper conservation within segments of the magazine publishing industry similar to an agreement recently worked out with Boston newspaper publishers.

Such an agreement with the Justice Department is necessary, NPA explained so that magazine publishers may not be held in restraint of trade and therefore, subject to prosecution under the Sherman Anti Trust Act.

The Committee's recommendation was made after it heard NPA describe the basic agreement worked out between NPA, the Justice Department and certain Boston newspaper publishers. This agreement allows NPA and the publishers to discuss ways of reducing wastage of newsprint. NPA said the agreement was worked out after a survey of 11 leading cities showed an annual loss of nearly 184,000 tons of newsprint between press runs and paid circulations.

At the committee's request, NPA agreed to initiate talks to see if some similar basic formula can be developed to help conserve paper among magazine publishers.

Defense Production Administrator Manly Fleischmann reviewed the current defense mobilization program for the committee. He said the defense program is aimed at broadening the nation's industrial potential by greater production of machine tools and expansion of facilities to produce such basic materials as steel, copper and aluminum. At the same time, Mr. Fleischmann said, the civilian economy must be kept at a high level.

The committee heard NPA officials describe the general paper outlook. In 1950, the mills turned out 4,408,000 tons of book, groundwood and writing papers, NPA said. Preliminary estimates show that 4,926,000 tons will be produced in 1951. NPA reported the following breakdown of production by paper types for the first six months of 1951 as compared with the same period of 1950:

	1951 (6 months)	1950 (6 months)	Percentage Increase
Groundwood (uncoated)	383,000 tons	331,000 tons	15.7
Machine coated	569,000 tons	486,000 tons	17.1
Book (uncoated)	834,000 tons	791,000 tons	5.4
Fine papers	677,000 tons	596,000 tons	13.6

NPA predicted that present supply-demand is approximately in balance and saw no reason why this situation should not continue.

The committee also heard reports on scarce materials, notably sulfur. The publishers were told that arrangements had been made with the NPA Chemical Division to allow publishers 100 percent of their 1950 sulfur supplies for 1951 requirements. NPA estimated that this should be sufficient to take care of minimum needs.

Chlorine supply is short and will remain so until new facilities are in production some time in 1952, NPA said. This shortage results partly from increased military needs and stepped-up requirements of the chemical industry. Canada has requisitioned all present chlorine supplies for the Canadian military program, NPA said. Pulp wood is reported to be in sufficient supply at present.

The committee was also informed that a forthcoming amendment to NPA Regulation 1 will bring all existing orders regarding inventory controls under one "roof." NPA Regulation 1, first issued September 18, 1950, prevents accumulation of excessive inventories of materials in short supply. The new amendment would combine a number of M-orders, further regulation inventories into one catch-all regulation.

Wholesalers' Sales Increase 31%

WASHINGTON, D. C.—Eight months' sales by paper and paper products wholesalers this year were 31 percent above those in the corresponding 1950 period, according to returns to the Bureau of Census released this week.

August sales aggregated $11,084,000, nineteen percent higher than in July, and 6 percent above those a year before. August inventories rose 13 percent from the year before, but showed no appreciable change from July levels.

Regionally, New England wholesalers' August business of $334,000 represented a rise of 1 percent both from July, and from August 1950 figures. Sales for eight months this year were 30 percent above those of the same months last year.

Middle Atlantic states reported eight months' sales up 40 percent from 1950; August sales aggregating $3,458,000 were 25 percent above July figures and 20 percent higher than a year earlier.

South Atlantic states reported August sales of $799,000, up 12 percent compared with July, but 3 percent below August 1950 sales. Eight months' sales were 32 percent above those of 1950.

East north central states had sales for August aggregating $3,822,000, a rise of 12 percent over July, but 3 percent off from a year before. Sales for eight months rose 27 percent over 1950.

Pacific Coast area firms reported August sales totaling $1,596,000, up 27 percent from July, and 14 percent from August 1950; sales for eight months rose 27 percent also, over the comparable 1950 months.

Glassine CPR-76

CPR-76, effective Oct. 3: set ceiling prices of $22.50 per hundredweight, f.o.b. mill, for 25 pound base No. 1 bleached glassine papers, and $22.00 per hundredweight, f.o.b. mill, for 25 pound base No. 1 bleached greaseproof papers; and provides formula for computing ceiling prices of related grades and new grades of such packaging papers.

Sulphur Requirements

Despite present restrictions on the use of sulfur, minimum requirements for the fourth quarter are expected to exceed production by 100,000 long tons.

NPA said it is considering less essential uses of sulfur and important sulfur derivatives such as sulfuric acid and carbon bisulfide, but that such a program could not be put into effect in time to relieve the critical fourth quarter problem.

Although no decision on immediate steps was reached, the following suggestions were made as possible temorary solutions:

1. The committee recommended that most sulfur users be restricted below the present permitted rate of 100 percent of their 1950 use. This would reduce demands and assure meeting vital defense programs.

2. NPA said it is considering an order which would restrict sulfur consumer inventories to a 25-day supply. This reduction from the three-month inventory now permitted would free an estimated 100,000 tons during the next few months and thus would help meet demands without reducing the nation's output of products dependent on the use of sulfur.

3. NPA said it also plans to encourage recovery and production of sulfur by companies which use it. Companies would be permitted to use this captive sulfur up to a certain limit, in addition to the sulfur it is already permitted to consume.

Regarding the committee's recommendation to reduce the permitted rate of sulfur consumption to 85 percent, NPA pointed out that any excessive reduction would create hardships throughout a wide range of industries which use sulfur and would tend to reduce the nation's production at a time when greater production is needed.

In addition, NPA also stressed that regardless of any set percentage, certain vital defense and defense-supporting needs must be met. Committee members agreed his would be necessary.

As for inventory restrictions, industry spokesmen voiced opposition on

Nalco

PITCH CONTROL Produces These Typical Results:

✓ "PAPER MACHINES IN FINE CONDITION"

From a Nalco Engineer's report on The Nalco System of Pitch Control in a mill producing fine papers:

"Bester Room Superintendent reported that paper machines were in very fine condition when examined during shutdown period over the weekend. Trays were reported in very good condition and much better than formerly noted. No sticking on press rolls. Oliver filter reported in good condition, no plugging. The Savalls Saveall reported in very good condition."

✓ NALCO ELIMINATED PITCH AND POPLAR WAX

In a mill manufacturing semi-chemical pulp, another Nalco Engineer reports:

"This company ran into considerable trouble recently from pitch and poplar wax in their semi-chemical corrugated medium. These waxes caused filling of wires and sticking of press rolls which in turn caused up to 30 breaks in a day. Nalco Pitch Control was applied at the fan pump and eliminated their trouble."

THE examples above are typical of the success and versatility of The Nalco System of Pitch Control in paper and pulp mills. Pitch-free operation saves time and money in these mills, and helps to produce a better product.

If you have pitch control problems, write Nalco for full data on the efficient, economical Nalco System as it may apply to your mill.

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the basis that it would make little additional sulfur available and that it would disrupt normal methods of shipment.

Industry spokesmen offered even stronger opposition to a suggestion that the inventories of producers themselves be reduced temporarily to help tide industry over the critical period until additional sulfur production is available.

Committee members said this would be impractical and that it would also be risky to reduce the present stocks of suppliers any lower than they are now.

Rather than reduce inventories, committee members said, it would be better to curtail uses to met present production rates.

NPA said it had been working with the Defense Production Administration for some time in an effort to fix a policy governing uses of sulfur and to map a program which would best fit essential needs.

The present picture, NPA said, is this:

About 1,100,000 long tons of sulfur will be consumed in the United States during the fourth quarter if the present rate of consumption is permitted to continue.

Canada, which operates under the same use limitations, would consume about 81,500 tons.

Exports, if they follow the pattern of the first three quarters of 1951, will be about 257,000 tons.

The total of all these uses would be 1,438,500 tons.

Production for the fourth quarter, however, is estimated at 1,338,500 tons, which would leave a deficit of 100,000 tons.

This will have to be met either by a reduction in rate of use or by making additional sulfur available from stocks held by producers or consumers.

NPA indicated that a decision on the extent of restrictions will be reached very soon, possibly within two weeks.

On a long-range basis, NPA said, the picture looks better. Facilities are now being built by some companies to recover sulfur from new sources. Some of these facilities will come into use next year. Although this increase will not be substantial, it will help, NPA said.

To stimulate similar recovery efforts by other companies, NPA is considering an order which would permit a company to use new sulfur it produces up to 50 percent of its permitted rate. That is, if a company is now using 100,000 tons of sulfur a year and it installs facilities for the recovery of sulfur from new sources, it could use up to 50,000 tons of this new sulfur itself in addition to its regular 100,000 tons, or a total of 150,000 tons.

NPA also expects to have its plan for the curtailment of the less essential uses of sulfur in effect as soon as possible, and this will reduce demand.

In 1953, a new sulfur deposit recently discovered in the Gulf of Mexico is expected to go into production with a possible output of 500,000 tons a year. This, of course, will aid greatly in balancing the supply-demand picture. It was pointed out at the meeting, however, that the use of sulfur continues to increase.

Sulfur and surfuric acid are used in a wide variety of industries, including steel, paper, rubber, petroleum, explosives, rayon, synthetic detergents (Chemical soaps) and others.

The shortage of native sulfur did not develop until last year and was caused by a continuing increase in consumption. Meanwhile, the production was almost static while a search for new sulfur deposits and development of facilities for other means of producing sulfur went on.

In June of this year, NPA issued the sulfur order, M-69, restricting sulfur users to 100 percent of their 1950 use. NPA said at that time that adjustments would be necessary to assure meeting sulfur needs of essential military and civilian programs.

Canadian Carloadings

OTTAWA—Canadian Government reports its latest nationwide survey shows car loadings on the railways from the beginning of 1951 until September 22 advanced to 181,566 cars of woodpulp and paper as compared with 163,366 cars in similar period of 1950.

Name G. J. Ticoulat to I. M. C.

G. J. Ticoulat has been named U.S. Representative on the Central Group of International Materials Conference.

Logging Union Membership

OTTAWA — In reporting on labor union membership in 1950, Canadian Government reports membership in such organized bodies for logging industry advanced to 34,350 in 1950 as compared with only 23,900 in the preceding twelve months period.

National Forests Receipts Increase

Receipts from national forests during July and August increased more than 43 percent over those for the corresponding period a year ago.

During the two months the Forest Service collected $13,941,122 from the sale of timber, grazing fees, land use permits and water power rights. For the same period last year the forests collected a total of $9,707,813.

Collections from national forests are deposited in the Federal Treasury. Twenty-five percent of all monies taken in are returned to the States to be used in counties containing national forests for public roads and public schools. An additional 10 percent of the receipts is set aside for the maintenance and construction of forest roads and trails within the State.

Shortage of Bush Workers

OTTAWA—Canadian Government reports that unfilled vacancies for loggers and bushmen throughout the nation reached 15,272 at August 30, 1951 in National Employment Service offices, with live applications for such employment totalling only 2,783 on that date, emphasizing the shortage of such workers across the nation.

In the Atlantic Division, unfilled vacancies totalled 1,474 and live applications for employment 241; in Quebec Division, unfilled vacancies 7,543 and live applications 163; Ontario Division, unfilled vacancies 2,539 and live applications 49; Prairies, unfilled vacancies 3,659 and live applications 71; Pacific Division, unfilled vacancies 2,259 and live applications 57.

Authorize Newsprint for Yugoslavia

WASHINGTON, D. C. — Purchase of $270,000 of newsprint from Canada was included in ECA authorizations this week. The paper is for Yugoslavia.

Amortization of Water Treatment Eqpt.

WASHINGTON, D. C.—Amounts paid for industrial water waste treatment equipment could be amortized at an accelerated rate for tax purposes under H.R. 5474, by Rep. Byrnes, of Wisconsin, which had been referred to the House Ways and Means Committee.

Gum Rosin Sales

WASHINGTON, D.C.—Gum rosin sold from government stocks from January through September 21 totals 135,061 cwt., valued at $1,151,334, the CCC reported this week.

To Control Paper Inventories

WASHINGTON, D.C.—All paper and paper products are expected to be covered shortly by forthcoming additions to inventory controls, the NPA advised book publishers and other interested industry members last week.

The agency said a proposed revision of NPA Reg. 1 would add about 40 products to those under inventory control, and this list would include paper and paper products. The regulation was issued in September 1950, and prohibits accumulation of excessive inventories of short supply materials.

In this connection, NPA reported that total production of all types of paper in 1950 was 24,300,000 tons, and preliminary estimates indicate a 1951 production reaching 27,592,000 tons. Recent reports indicate there is a normal 30-day backlog on hand, said the agency and there is no indication the situation will change in the next six months.

Regarding proposed expansion of paper-making facilities, NPA said applications are pending for certificates of necessity involving a total of $500 million, in addition to certificates already granted covering nearly $500 million for paper-production facilities. The expansion already approved will provide an additional 1,998,000 tons of paperboard and paper of all types.

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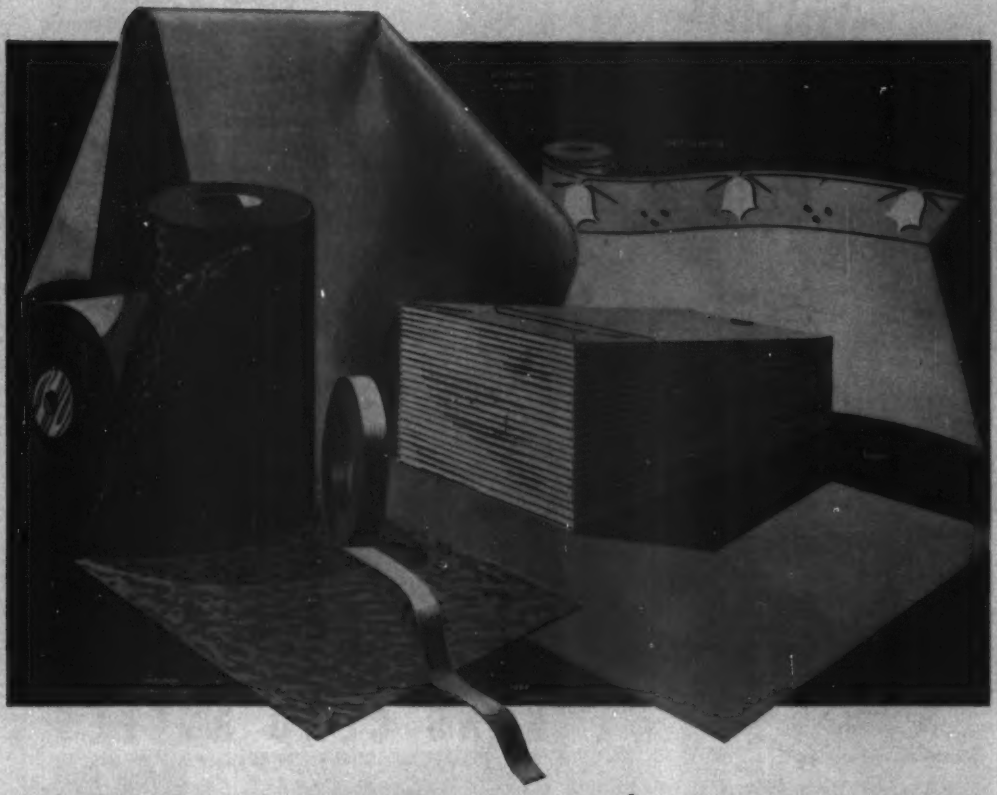

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Corrosion-Resistant Metals for the Pulp and Paper Industry*

Daniel L. Horigan

Development Engineer, Lukenweld[1]

(Concluded from last week's issue)

Shop Applied Linings

Shop applied linings, as the name suggests, are handled in the fabricating shop. The three common methods use sheets up to 48" wide and 144" long. The welding is done in the flat position prior to forming the sheets. The lining for digesters must comply with the requirements of Case 1078 of the ASME Boiler Construction Code.

The first method is by *seam welding*, and is illustrated in *Figure 14*. Plates

Figure 14—Seam welding.

are manufactured by the use of overlapping seam welds in the longitudinal direction. These welds do not overlap on the transverse direction but leave a small section of the alloy liner material that is not welded to the backing plates. This material is the nearest approach of any to the homogeneously bonded clads and can only be criticized for its extremely rough surface due to the pressure exerted by the seam welding wheel. This material is generally applied in thicknesses averaging 7/64".

The second method is by *spot welding*. This type of lining is illustrated in *Figure 15* and consists of spot welds on various centers, such as 1" x 1" or 3" x 3", depending on the application. It can be applied in gauges up to 3/16" thick but is most commonly used in 5/64" or 7/64" thicknesses.

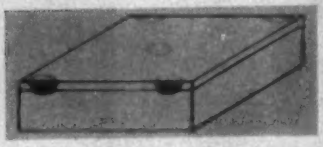

Figure 15—Spot welding.

The third method of shop applied linings is by means of *through welding*. This type of lining is illustrated in *Figure 16* and is generally made by

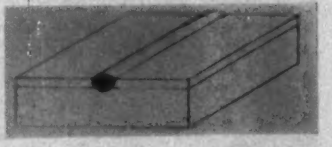

Figure 16—Through welding.

Figure 17—Photograph of Specimen Panel showing Clad Steel test specimens, welded plates and sodium hydride finish.

[1] A Division of Lukens Steel Co., Coatesville, Pa.

* A Paper Prepared for the Pulp and Paper Course at the University of Maine. Edited by L. C. Jenness and John Lewis and published by agreement with the Department of Industrial Cooperation at The University of Maine.

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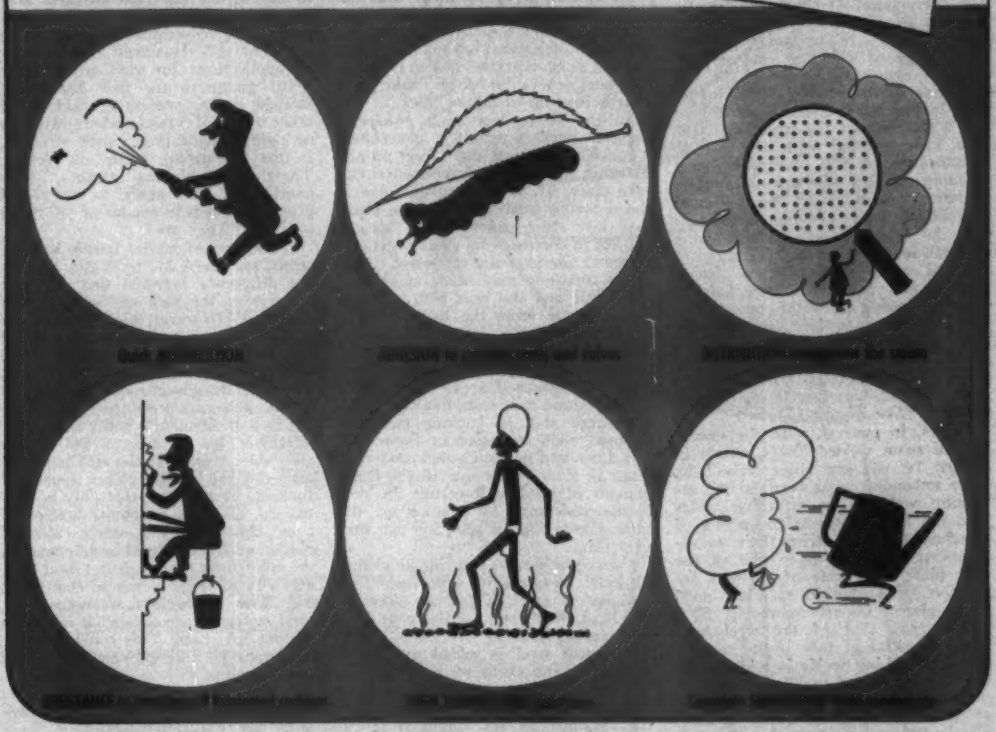

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taking a large liner sheet and welding through it and into the backing steel with an automatic welding machine. These welds are spaced on centers of 3" and up, depending on the application. Dilution of the weld metal is compensated for by using a higher alloy electrode.

Clad Steels

Clad steel is a composite plate made up of a carbon or low-alloy steel backing plate, to one or both surfaces of which is uniformly and inseparably bonded over the entire surface, a cladding of some corrosion-resistant metal. The percentages of cladding normally supplied are 10% and 20% of the composite thickness of the material. Other percentages of cladding can be supplied on request. The use of the full thickness of the clad material in design is permitted under Case 896 of the ASME Boiler Construction Code. This case coupled with the ASTM Specification A-263 (chromium steel cladding), A-264 (chrome-nickel steel cladding), and A-265 (nickel and nickel-base alloy cladding), requires that the clad materials exhibit shear strength in excess of 20,000 psi.

These clad materials are easily formed and fabricated into finished structures using established procedures. Bend tests of as-welded samples more than meet the requirements of the ASME Code, Para. U-200, even in the as-welded and unstress-relieved conditions. The clad surface is smooth and uniform. *(See Figure 17)*

Liners, in general, with the exception of seam welded liners, shown in *Figure 14*, all are characterized by large unbonded areas between the attaching welds. The attaching welds hold the liner plates at the points of attachment and restrict their movements at those points to that of the base plate. The rate of thermal expansion of austenitic stainless steel liner plates is approximately 50% higher than that of the steel base plate. Because of this, if the spacing of the attaching welds is wide, buckling or bulging of the liner will take place. This buckling may be elastic at wider spacings or may produce plastic flow at narrower spacings. If the attaching weld spacings are very close, elastic compression followed by plastic flow will take place. This produces, in all cases, a highly localized concentration of stresses at the liner plate adjacent to the attaching welds. In cyclic temperature operation, such as the heating and cooling experienced in the cooking of pulp, this concentration of stresses may cause failure of the liner plate, or of the backing plate, in any one or combination of the following ways:

1. Stress corrosion cracking, due to high tensile stresses, causes plastic deformation in the presence of the proper electrolytic solution. Recent examples and service failures of lined sulfate digesters due to stress corrosion cracking have shown that the concentrated cooking liquors, coupled with high stresses, will produce this type of failure. Sulfite digesters have also failed from this cause.

In contrast to this, when a clad plate is rolled up and welded, the cladding alloy on the inside of the vessel is stressed in compression. Additional compressive stresses are introduced into the cladding by any operation that raises the temperature of the vessel. This point is extremely important, as materials in compression have never been known to cause stress corrosion cracking.

2. Mechanical cracking due to fatigue failure produced by the flexing back and forth of the liner material during cyclic temperature operation may allow penetration of the cooking liquor in digesters behind the liner. Here it is concentrated due to evaporation, and general attack may take place on the base metal or the liner.

In the above two cases, where a digester liner is definitely penetrated, a concentration cell may be set up and galvanic attack of the carbon steel can take place. In addition to this, due to the reducing condition, stainless liners may lose their passivity and become subject to corrosion by pitting, general attack or intergranular corrosion. Also, stress corrosion may occur at or near the welds and the liner will open up and separate from the backing steel.

When a digester lining has cracked, as in (1) or (2) above, the extent of damage is wide-spread because the unbonded, unattached areas of the liner sheets extend to a considerable extent, and large area of backing steel are exposed, such as shown in *Figure 15*.

3. Localized general attack may take place in liner plates due to the large amount of welding lowering the corrosion resistance by dilution of the liner. Proper metal selection can prevent this.

Consideration is given in the design of lined digesters to a corrosion allowance of steel of ⅛" or more on the head, shell, and on the cone bottom, in addition to the liner plates. This extra steel is added as a precaution in the event of liner failure. In the case of clad steel digesters where stress corrosion cracking or fatigue failure of the lining is not a factor, this extra protection can be eliminated with the resultant savings in material.

It is normal fabricating procedure to X-ray, at the same time, both the weld in the steel side and the alloy side of the clad plate. This insures that the weld is free from cracks or other defects and that corrosion-resistant properties are maintained. When lined vessels are X-rayed, the liner welds are only X-rayed when they cross the vessel's main seams. Therefore, to insure that all liner welds are sound, each panel of the liner must be hydrostatically tested.

The surface of the clad steel plate is free of depressions and offers resistance to the crevice corrosion that is often found on rough surfaces. This smooth surface is also an aid to pulp removal in digester service.

In addition to the factors just covered, the initial cost of the material has a bearing on the selection of the proper form of corrosion-resistant metal. In solid form, the cost of stainless steels is directly dependent upon the chromium and other alloy content. This is not always true of the clad forms. Wall thickness of a vessel gives a handy guide for proper selection.

When the wall thickness is 3/16" or under, solid alloy is usually most economical. From 3/16" to ½" solid material and clad material are competitive. If consideration is given only to the higher allowable stresses permitted in the solid material, it is generally most economical in gauges from 3/16" to ½". However, the majority of applications for clad steels under 5/16" gauge in the past have been storage tanks, processing tanks, and other types of vessels where stiffness or rigidity, more than tensile strength, is the governing factor in design. There are additional factors, often overlooked, that apply to design of pressure vessels in gauges of ½" down to 3/16". They are:

1. The use of higher tensile backing steels, such as A-212 or A-204, reduces the difference between the allowable stresses of the clad and of the solid materials. However, high temperature applications give the chrome-nickel stainless steels and Inconel in solid form a definite advantage over clad, while the straight chromium steels and Monel and nickel in the solid form are at a disadvantage under these conditions. This is due to the higher allowable stresses at elevated temperatures for the chrome-nickel steels and Inconel. If heat transfer only is considered, clad has a definite advantage over chrome-nickel steels, straight chromium steels, Monel and Inconel in the solid form, due to better heat conductivity of these metals in clad form.

2. The overweight tolerances for solid materials are somewhat in excess of that for clads. This could be quite important if a large vessel is under consideration.

3. Hot forming costs for solid materials are considerably higher than those for clad. In addition to these costs, annealing and pickling are not included in the base price for solid materials while they are included in the base price for clad materials. Here again this could be quite important if a large vessel is under consideration.

4. It can be readily seen that in gauges under ½", the fabricating cost of the two forms of material will vary due to the design, and no definite general advantage can be given to either form. Each case must be considered individually.

From ½" to 1¼" wall thickness, clad and lined material are very competitive. Above 1¼", lined is usually most economical if operating conditions permit its use. As pointed out above, for many types of applications linings cannot be used, since considera-

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tion must be given to such factors as surface, heat conductivity, and differential expansion with resultant high stresses and possible stress corrosion cracking under cyclical temperature application.

If severely corrosive conditions require a heavy gauge (3/8" and up) of corrosion-resistant material, a change in material is indicated. Heavy gauges of solid stainless steels and Inconel in general are used because of the higher allowable stress permitted at high temperature (above 650° F.) and not because of severely corrosive conditions.

Plating

While the cost of chromium plating is not low, in a number of instances, it has been found to be the cheapest way of preventing corrosion. Pure chromium has a bright appearance, excellent heat transfer properties and exceptional wear and corrosion resistance, all of which are points to be considered in connection with its use. Nickel plating does not have the hardness of chromium plating but finds wide use for its corrosion resistance and appearance.

PART III

Applications

This part discusses specific applications of corrosion-resistant metals in the pulp and paper industry. Pulp manufacture and bleaching are the normal places where severe corrosion problems exist. Local conditions may give rise to other critical places. At the other points, mild corrosion, product contamination, or ease of clean-up are the main problems. This part is set up in outline form, listing only those items where corrosion-resistant metals have been used, with pertinent comments where necessary.

1. Pulp Manufacture (general)

A. *Digesters*—Corrosive attack may be especially severe at the liquor level line, in the vapor section, in the cone section, and at the inlet and outlet nozzle areas where condensation or erosion are more pronounced. Corrosion of carbon steel digesters has been accelerated in recent years, and the reasons below may help to explain why.

(1) In the past, the majority of digesters were built from low tensile rimming steels. This material has a rim on each side of the plate of almost pure iron and was normally supplied with low tensile strengths. It is considered that this rim has better corrosion resistance than that found in the killed or semi-killed steels which have been used recently. These killed or semi-killed steels contain silicon which is believed to reduce resistance to corrosion. In addition to this factor, it is possible that the higher tensile strength materials inherently will corrode more readily than those displaying low tensile strengths, probably in connection with incipient stress corrosion.

(2) The pulp industry, in general, is going to higher temperatures and pressures which will influence the rate of corrosion detrimentally.

(3) Stronger solutions are now being used in the cooking liquors which again detrimentally effect the corrosion rate.

(4) Increased circulation is often being used, which increases the chance of erosion and aeration. Increased aeration may accelerate corrosion, though not on stainless steel, and erosion is tied in with the destruction of a passive film on the metal.

(5) In many areas, mills have started to add a certain percentage of hard woods to their charge, due to the decreasing availability, with consequent increase of cost, of the soft woods normally used. This factor produces modifications in the theoretical basic cook.

(6) At the same time, some mills have felt it desirable to shorten cooking time for economical reasons; and one method of doing this is the use of accelerators or wetting agents, which again cause chemical modifications in the basic cook. (See specific recommendations under sulfate, sulfite and soda pulps.)

2. Groundwood Pulp

A. *Grinder Pit Liners*—Mild corrosion and strong erosion. Type 304 solid stainless plates have been used to combat such attacks. Clad or lined could be used.

B. *Pulp Stone Flanges*—18-8 stainless castings have been used.

C. *Stock Lines*—18-8 stainless and Monel, either in cast, solid, clad, or lined form, may be used. Ease of clean-up is the big factor here.

D. *Multistage Washers*—Monel or 18-8 stainless steel sheet, clad or lined plate may be used.

E. *Unbleached Pulp Chest*—Usual construction is concrete or tile-lined pit. 18-8 stainless-clad or lined plate could be used.

F. *Hydrogen Peroxide Storage*—Aluminum drums or tanks should be used.

G. *Peroxide Bleach Dissolving Tank*—May be made of aluminum or 18-8 stainless-clad or lined plate.

H. *Peroxide Bleach Head Tank*—Same as "G."

I. *Mixer*—18-8 stainless steel clad or lined plate.

J. *Bleaching Tank*—Type 316 stainless-clad or lined plate will stand up in this service.

K. *Bleached Stock Chest*—Lead, copper, or iron are no good. Lead and copper are active catalysts for peroxide decomposition. Iron is also a catalyst, though not as active. Any type of stainless steel or nickel-base clad or lined plate will be adaptable.

3. Sulfate Pulp

A. *Chip Screens*—See 3-A.

B. *Digesters*—Inconel and Types 304, 316, 316 E.L.C., 316 Cb, 317, 347, 405, and 410 stainless steels in clad or lined form have all been used. Experience with Types 405 and 410 has not been sufficient to be conclusive. Failures of lined digesters with the various types of stainless can probably be attributed to factors discussed in Part II. Inconel is used because it is not subject to caustic embrittlement.

C. *Turpentine Recovery*—Nickel, 18-8 stainless, or Everdur bronze castings, sheet and clad or lined plate are used.

D. *Diffuser Cyclone*—Steam and caustic in the presence of air cause trouble here. Type 304 stainless-clad has been used successfully.

E. *Multistage Washers*—Monel or Types 304, 316 and 347 stainless are used for built up decks and facings. Ni-resist is good for cast parts.

F. *Evaporators*—18-8 stainless-clad or lined shells; 18-8 stainless tubes; tubes chrome plated on the outside to reduce sulfide corrosion; Inconel tubes; 18-8 stainless-clad tube sheet; and Whorthite or Durimet 20 (special austenitic stainless steels) in transfer pumps. Inconel tubes are apt to be expensive. For multiple-effect evaporators, the following chart is useful:

Effect	Shell	Tube Sheet	Tubes
1	a	a	a
2	a or b	a	a
3	a or b	a or b	a or b
4	b	b	b
5	b	b	b

Note: a = Types 304, 316, or 347 stainless.
b = Carbon Steel.

G. *Tall Oil Soap Making*—In the batch process, Monel is suitable for sulfuric acid fat splitting. The 18-8 stainless steels, nickel and high nickel alloy steels are used in other places.

H. *Recovery Stacks (Fume Stacks on Smelters)*—No economical known metallic substance will stand up for this service, especially in the area where moisture will condense.

I. *Smelter Spouts*—Type 309 or 310 stainless.

J. *Green Liquor Storage Tank*—Monel, nickel, or 18-8 stainless or clad steels may be used.

K. *Slaker*—Type 304 stainless steel. Monel is better if dilute hydrochloric acid is used in lime sludge filters.

L. *Causticizing Tank*—A well known equipment manufacturer is said to prefer Type 304 stainless steel to carbon steel here.

4. Sulfite Pulp

A. *Chip Screens*—Abrasion resistance is a big factor here. Heavy gauge stainless steel wire is used.

B. *SO_2 Cooler*—Type 316 or 317 stainless steel clad or lined plate are used in the spray type; lead, in the submerged type.

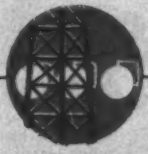
C. *Acid Tower*—Type 316 or 317 stainless steel clad or lined plate.

D. *Absorption Tower*—Wood, lead, or concrete with tile lining.

E. *Acid Storage Tank*—Type 347 stainless is good only if the acid is cold. Type 316 may be used if it is annealed (may be subject to intergranular corrosion if it is not). Type 316 E.L.C. is also used. May be solid, clad, or lined.

where stainless steel tubing

is required—



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F. *Accumulator*—Type 316 or 317 clad or lined.

G. *Digesters* — Stainless-clad or lined plates compete successfully and economically with ceramic linings. Type 347 is of doubtful value in the presence of SO_2, unless it is cold. Types 316 Cb and 316 E.L.C. may be used for neutral sulfite semi-chemical pulping or 304 for continuous pulping. Type 316 E.L.C. or Cb stabilized may be used for a regular sulfite cook. Type 316 may be used for magnesium or ammonium soluble base cooks. The use of Types 405 and 410 is still experimental.

H. *Blow Lines*—Type 316 stainless-clad, solid or cast. Also cast iron, bronze or Ni-resist may be used.

I. *Blow Pit or Tank* — Type 316 stainless in solid, clad, or lined form. Target plates should be solid. Nozzles and false bottom may be solid or other forms.

J. *Gas Recovery* — Sulfite waste liquor recovery and utilization requires Type 316 stainless in solid, clad, or lined form for the alcohol plant equipment.

K. *Fume and Vomit Stacks*—Normally wood or tile. Type 316 stainless would be all right only above the temperature where condensation begins.

L. *Multistage Washers*—18-8 stainless sheet or clad steel plate may be used.

M. *Knotters* — 18-8 stainless or Monel wire may be used. Also punched or slotted sheets.

N. *Riffler*—Usually tile. Types 316 and 347 stainless sheet would give smoother surface. Monel and bronze or steel chromium plated could also be used.

O. *Fine Screens*—Usually brass or bronze plate. Type 304 or 316 stainless, Monel, or Inconel sheet may be used, but rigidity is a factor. These same materials in clad form could be used, but carbon backing steel needs protection. These materials maintain slot width longer than brass or bronze.

P. *Course Screens* — Same as fine screens.

Q. *Thickener or Decker*—Type 304 or 316 stainless, nickel, and Monel are used for channels, winding wires, backing wires, facing wires, and binding wires or straps.

R. *Unbleached Pulp Stock Chest*—Type 316 stainless, Monel, or Nickel sheet, clad or lined could be used.

S. *Peroxide Bleach* — See under Groundwood Pulp.

T. *Chlorine Washer* — Type 316 stainless sheet used for washer covers.

U. *Caustic Bleach*—Nickel plate or clad should be used with caustic.

V. *Caustic Washer*—Nickel, Monel, or 18-8 stainless steel sheet for covers and plate for vats.

W. *Hypochlorite Bleach*—Monel is satisfactory for calcium base; may fail with sodium base. Calcium builds up an insoluble protective scale, while the sodium reaction give soluble products. Type 316 stainless might be satisfactory in a batch system where exposure would be for a minimum time.

X. *Hypochlorite Washer*—Monel or 18-8 stainless sheet for covers. Unless solution is Cl_2 free, Types 316 or 317 are the only suitable 18-8 stainless steels.

Y. *Thickeners*—Monel shee covers.

5. Soda Pulp

A. *Digesters*—Usually carbon steel. A 20 percent Lukens Inconel-Clad Steel plate is going to be installed in the middle course of a soda digester at the Great Works, Maine, plant of Penobscot Chemical Fiber Company this summer. This is being installed to combat severe erosion at the liquor line. This erosion may have been accelerated by stray electrical currents. Such use of Inconel will permit a switch to kraft at a later date if desired. Monel has been used extensively for pipe in circulating systems, blow-off valves, and white liquor valves.

B. *Wash Pans*—Monel lined, stainless-clad or nickel-clad plates are used.

C. *Diffusers*—Same as 3-D.

6. Stock Preparation

A. *Pulper* — Nickel-clad and 18-8 stainless-clad are used in hydrapulpers. Solid 18-8 stainless plate and castings are used in E. D. Jones Pulpmasters. Solid 18-8 stainless is used in the Cowles hydrafiner.

B. *Beaters*—Erosion, ease of wash-up, and stock contamination are factors here. 18-8 stainless sheet and solid, clad, or lined plate are used here. Tile lining, or copper lined wood are also used. Monel or "K" Monel are used for beater bars.

C. *Jordans or Refiners*—Monel, "K" Monel, and Type 302 stainless have been used very successfully for Jordan fillings and bars. These materials maintain their sharp edges for long periods with considerable savings in care necessary to produce uniform stock preparation.

7. Fourdrinier Machine

A. *Screens*—Monel, Inconel, and 18-8 stainless screen plates. Bronze was used, but had poor slot wear. Chromium plated bronze was also tried, but the plating flaked off.

B. *Flow Box, Head Box, and Slice*—Here ease of wash-up and slime control are big factors. Bacteria will lodge on a rough surface. Slime is produced by anaerobic (living or acting in the absence of free oxygen) bacteria, which are iron feeding and which give off acid in the course of living that will corrode an iron surface. Copper will kill them, but is soft and apt to erode. Stainless steel, nickel, and Inconel provide a less adhesive surface and are corrosion-resistant. Monel or Type 316 are useful if brackish water is apt to be used. They are all available in economical clad forms. All of these metal surfaces are highly abrasion-resistant, and will not chip, peel, crack, or spall. A highly polished surface, (such as No. 4, Luster, or Super Luster) smooth joints and contours and lack of blind corners are more important than type of corrosion-resistant material. If a corrosion-resistant metal is used, the pH can be lowered somewhat to help alum sizing.

C. *Distributor Roll*—Monel or 18-8 stainless are used.

D. *Flow Spreader*—See 7-B.

E. *Shower Pipes and Nozzles* — Monel or 18-8 stainless are used.

F. *Breast Roll*—Bronze or Monel covered steel or iron.

G. *White Water Pans and Trays*—Monel or 18-8 stainless sheet.

H. *Save-all*—Monel or 18-8 stainless sheet and solid, lined, or clad plate may be used.

I. *Suction Boxes* — Monel or 18-8 stainless solid, lined, or clad plate and castings may be used.

J. *Fourdrinier Frames* — Monel or 18-8 stainless solid or clad plate, or Monel or 18-8 stainless sheet lining over carbon steel or iron.

K. *Table Rolls*—Aluminum, brass, 18-8 stainless, or Monel tubing or pipe.

L. *Dandy Roll* — Monel body and cover wire.

M. *Press White Water System*—See 7-G.

N. *Broke Beater*—See 6-B.

8. Cylinder Machine

A. *Regulating Box*—Monel or 18-8 stainless sheet and solid, lined, or clad plate.

B. *Head Boxes*—See 7-B.

C. *Vats*—See 7-B. Ease of clean-up is particularly important on job lot runs. Type 316 stainless or Monel in solid or clad form should be used if brackish water is apt to be encountered, as Type 302 has been known to fail prematurely under these conditions.

D. *Molds* — Nickel, Monel or 18-8 stainless wire and rod may be used.

9. Coating and Sizing

A. *Size Making Tank* — Lukens Nickel-Clad Steel plate has been used to prevent discoloration.

B. *Size Press Pans*—Monel sheet.

C. *Alum Tanks*—Monel is used.

This ends the list of specific applications in the pulp and paper industry. One of the prime reasons for using corrosion-resistant metals in places where extreme corrosive conditions do not require their use was summed up by a paper mill superintendent, who said, "We have problems enough in making paper, so we are very happy if we can install equipment and then forget it."

In concluding, it should be stressed once more that each corrosion problem requires individual study to be sure that all pertinent factors have been taken into consideration. The suppliers, fabricators, and customers, working as a team, will find new and increasingly economical uses for corrosion-resistant metals, with a resultant economy of production.

Bibliography

(1) "The Use of Nickel Containing Alloys in the Pulp and Paper Industry." H. O. Teeple, International Nickle Co., Paper Trade Journal, 1950.

(2) "Stainless Steels" — Carl A. Zapffe, American Society for Metals, 1949.

Agitate 6% Stock in Vertical Cylindrical Chests

Without Special Baffling....

You can save on construction cost of new stock chests by specifying *Lightnin Mixers.*

Lightnin Mixers quickly agitate 6% stock to high uniformity, in vertical cylindrical chests, without special construction, midfeathers, or costly baffling.

Lightnin Mixers are made in sizes up to 500 horsepower. They are now used in stock chests as large as 285,000 gallons.

MIXCO agitation technology, unequalled in the industry, gives you accurate prediction of the results you will get with *Lightnin Mixers.* Every *Lightnin* is guaranteed to do the job for which it is recommended.

For full information, write today, briefly describing your needs.

LIGHTNIN TURBINE AND PADDLE AGITATORS are flexibly adaptable to open or closed tanks, top or bottom entering use. Standard models have up to 16 quickly interchangeable speeds. Wide range of impeller designs for every agitation requirement. Sizes from 1 to 500 HP.

Lightnin® Mixers

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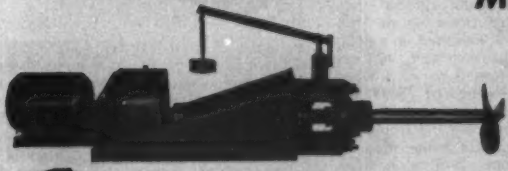

LIGHTNIN SIDE ENTERING MIXERS mix large volumes of liquids in tanks up to 5 million gallons. They may be repacked from outside the tank, without draining tank. Sizes 1 to 25 HP.

LIGHTNIN PORTABLE MIXERS are universally used for making up additive solutions, keeping clay slurries in uniform suspension, and for general purpose fluid agitation. They are made in 30 different models, securing correct power, speed and degree of agitation for every need. Sizes ⅙ to 3 HP.

A COMPLETE LINE . . . UNEXCELLED TECHNOLOGY

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Please send me the literature checked:

- ☐ B-76 Side Entering Mixers
- ☐ DH-50 Laboratory Mixers
- ☐ B-78 Top Entering Mixers (Propeller Type)
- ☐ B-100 Condensed Catalog covering complete line
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- ☐ B-75 Portable Mixers (Electric and Air Driven)

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New Equipment

Industrial Perlite Products

Industrial perlite products which have wide application in the chemical industry are being sold under the brand name of GRELLEX. Completely inorganic, they are said to be insoluble in water and most acids and contain no oxidizing elements. They have extremely low electrical conductivity and vapor absorption. Specific heat is approximately 0.20 Btu/lb./°F. Thermal conductivity ("K") factors vary with the size gradation, density and mean temperature, ranging from .22 to .35 Btu/sq. ft./hr./°F./in. thick.

Perlite is a form of volcanic rock which when heated quickly to a suitable point in its softening range, expands to form a lightweight, non-combustible, glass-like material of cellular structure. The expansion forms a series of cells or voids, sealed by microscopic, but sturdy volcanic glass walls. Produced by Great Lakes Carbon Corp., Perlite Div., 18 East 48th St., New York 17, N. Y.

100 Megohm Insulation Tester

Vibrotest Model 264 is a new insulation resistance tester which has a testing range from 0-100 megohms at 500 volts d.c.; plus a low-range 0-10,000 ohm scale. The 100-megohm scale (2 megohms center scale) provides range for accurate charting of insulation resistance to show up deteriorating or faulty insulation before it reaches a minimum resistance value consistent with operating safety. Addition of the 0-10,000 ohm scale (200 ohms center scale) makes possible circuit continuity testing with the same instrument.

Operating circuit of the new model is basically the same as other Vibrotests. *Push-Button* testing requires no cranking or leveling. Only two binding posts are used for all tests. Unit is completely self-contained, with standard battery power source. Weight, with batteries, 18 pounds. Dimensions: 7¾" x 6⅛" x 7½".

Details and prices on request to the manufacturer: Associated Research, Inc., 3758 W. Belmont Ave., Chicago 18, Ill.

Metal Detector Equipment

The new metal detectors, designated the "Guardsman Series," are designed to indicate the presence of even minute particles of metals or alloys, whether magnetic or non-magnetic, and regardless of their depth in the material, as products pass through an inspection aperture on an endless conveyor belt or by means of a chute at rates of 10 feet to 1000 feet per minute.

They can be used to light a warning lamp, ring a bell, stop a continuous process, mark the contaminated object, or deflect it into a special channel or receptacle for rejects.

The equipment consists of two units, the control unit and the inspection head. Materials passing through the inspection aperture are screened by a high-frequency electromagnetic field, generated by scientifically designed coils embedded in a water-proof material. High-frequency power is fed to the coils from a self-contained electronic oscillator, and the reaction caused when metal is present in the material being screened operates a relay which triggers either a signaling device (lamp or bell) or an automatic marking or ejecting mechanism, or a combination of these, whichever is desired.

Designed and built by the Engineering Products Dept., RCA Victor Div. of the Radio Corp. of America, the new metal detectors will be marketed by the Eriez Mfg. Co., of Erie, Pa., domestic and Canadian distributor for RCA metal detection equipment, and by RCA International for foreign export.

Hydrotherm Package Unit

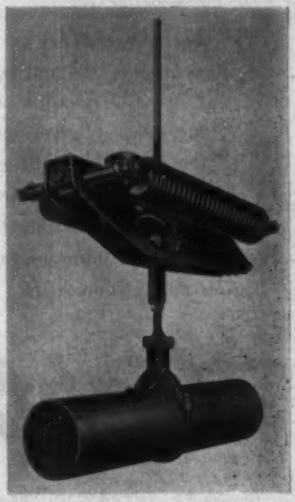
A line of liquid phase heat transfer equipment to operate at temperatures up to 800°F has been announced.

The equipment is offered as individual components adaptable to large industrial requirements, or as "tailored" package units for smaller installations. Coal, gas, or oil fired boilers with capacities up to 20,000,000 Btu per hour are specially designed for high circulation temperatures and for high flow velocity to avoid overheating the liquid transfer medium. Special centrifugal pumps are rated up to 1600 gpm. Package units, mounted on a common frame, utilize electric heaters with capacities from 3 to 75 kw, or gas heaters with ratings of 250,000 to 1,000,000 Btu per hour, and may be adapted for oil firing. Circulating pumps for these units come in sizes of 1½ to 120 gpm. Boilers, heaters, centrifugal pumps, valves, controls, and other components are designed and constructed to perform efficiently, safely, and uniformly at any desired flow temperature or speed. The controls can apply to the heating phase alone, can combine heating and cooling, or can be interconnected with other variables of speed and time, it is said. Write to American Hydrotherm Corp., Thermal Engineers, 33-70 12th St., Long Island City 6, N. Y.

Constant Support Hanger

A new Constant-Support hanger, Model L, designed to provide simplified field adjustment, increased travel range and greater load capacity with a smaller number of springs and fewer chassis sizes is now available.

Refinements featured are: hanger structure designed for center support, which places equal dimensions on each side of the center supporting line; non-resonance in its springing system; and

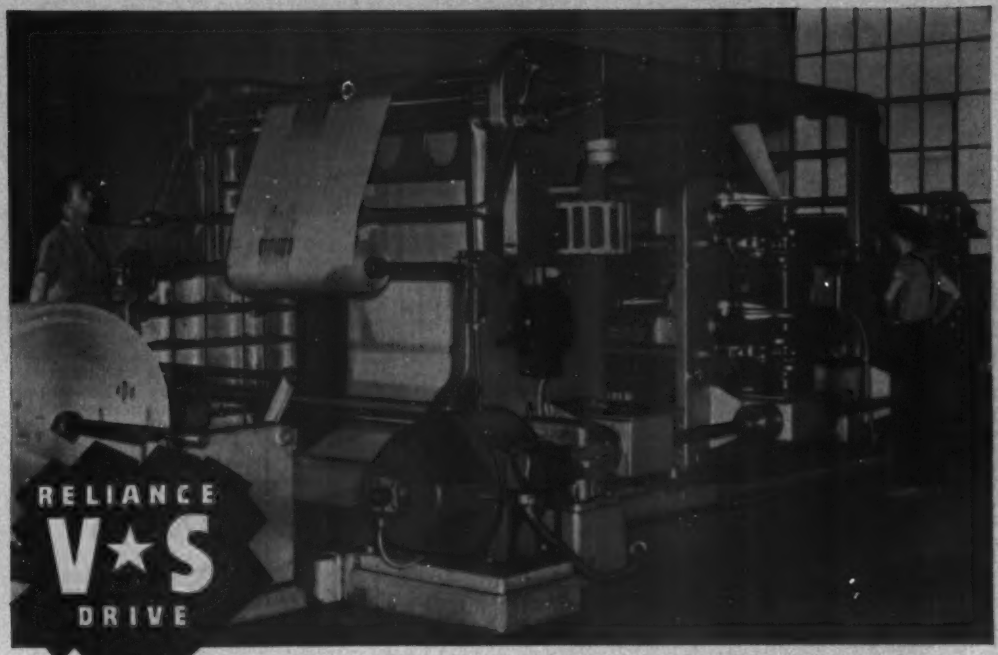


provision to give less horizontal shift of the load line, as the load shifts from cold to hot positions. Maximum travel with constant support has been increased from its former 4 inches to 5 inches in the medium chassis and from 8 to 10 inches in the large chassis.

Discrepances between calculated hanger loads and actual loads can be corrected in the field at the time of installation, it is said, by making a simple adjustment of the position of one nut on the Model L hanger. This simplified adjustment is possible because the compensating spring requires no adjustment with a change of load setting, whereas in the former model the booster spring and the two main springs all had to be adjusted for a change in load setting. Manufactured by Grinnell Corp., Providence 1, R. I.

Temperature-Sensitive Crayons

Tempilstiks® are temperature-sensitive crayons of calibrated melting points. There are sixty different Tempilstiks® covering the range from 113°

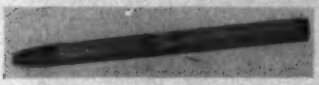


...the Electrical Transmission for Greater Production from Paper Making and Converting Machinery

Conveniently-packaged, factory-wired V★S Drives are available from 3/4 to 200 hp. Two or more motors may be operated simultaneously from a single Control Unit.

STARTING without clutches—STOPPING without mechanical brakes or clutches—REVERSING without use of gears or clutches—JOGGING, INCHING, CREEPING without slipping clutches—in addition to the basic function of providing ADJUSTABLE-SPEEDS from A-C. CIRCUITS. Reliance V★S Drive is the proved method of increasing production and lowering operating costs—over 13 years of applications in mills everywhere. Write today for Bulletins 311 and D-2101.

RELIANCE ELECTRIC AND ENGINEERING CO.



F. to 2,000°F., each indicating a specified temperature, within a tolerance of plus or minus 1% of its rating.

An inexpensive and accurate way of determining industrial temperatures, they are designed for use in welding, forging, heat-treating and fabrication of metals; molding of glass rubber and plastics; and generally for controlling temperatures where the workpiece is accessible.

The appropriate Tempilstik® is selected and, for most applications, the work-piece is marked with it before heat is applied. On subsequent heating the crayon-like mark of the Tempilstik® melts as soon as its temperature rating is reached. For determining the lower temperatures (below 500°F.) it is sufficient to make a mark on the workpiece with the proper Tempilstik® before heating begins. When workpiece is heated to the stated temperature the Tempilstik® mark will liquefy.

Write for Catalog 501, Tempil Corp., 132 West 22nd St., New York 11, N. Y.

NEW LITERATURE

Williams Gauge Co., 1602-22-24 Pennsylvania Ave., Pittsburgh 33, Pa. Brochure, "The Cause, Effect and Control of Water Hammer in Piping Systems." Includes the results of further tests made to determine what effects check valves have in overcoming water hammer.

United States Dept. of Commerce, Washington 25, D. C. Bulletin. Discusses 2 processes developed by the Northern Regional Laboratory which produce high yields of strong, easy-bleaching papermaking pulps from straw.

Gould-National Batteries, Inc., Trenton 7, N. J. Data sheets, "How to Return to Full Service Motive Power Storage Batteries Which Have Lost Capacity Due to Sulphation." Gives 6 causes of sulphation and details all steps to follow to restore batteries having various degrees of sulphation, from early development stages to a point where battery must be scrapped.

C. M. Guest & Sons, Anderson, S.C., and Greensboro, N. C. "Builders for the South." Book, "Construction in the South." A pictorial record of Guest's achievements in construction, modernization, and maintenance since 1893. Section on "Paper & Paper Products." Features Halifax Paper Co., Dixie Cup Co., Camp Mfg. Co., West Virginia Pulp & Paper Co., and Riegel Paper Corp.

International Nickel Co., Inc., 67 Wall St., New York 5, N. Y. Thirty-six page bulletin, "Engineering Properties and Applications of Ni-Resist." Describes 8 types of austenitic nickel alloy cast irons that offer unique combinations of properties. Illustrated with photographs, tables of properties, and corrosion data on nearly 400 conditions.

Sutherland Refiner Corp., Trenton 8, N. J. Bulletin, "The Sutherland Breaker Trap for Selective Defibering and Tramp Metal Removing." Describes and illustrates.

Committee on Advertising, Chamber of Commerce of the U. S., Washington 6, D. C. Pamphlet series, "Fables and Facts About Advertising." Aimed to clear up the misconception about advertising. "The Man Who Couldn't See Beyond His Own Nose," explains advertising's role in lowering prices to the consumer; "How Cautious Can You Be," enumerates reasons why advertising can be believed; "Where's Elmer?", shows how advertising creates demand, builds up production and increases the number of jobs. Price $3 a hundred copies.

U. S. Dept. of Commerce, NPA, Washington 25, D. C. Brochure, "Scrap for Steel Mills and Foundries for Defense." Program for emergency scrap recovery. Includes the formation of scrap mobilization committees in industrial communities throughout the country.

U. S. Dept. of Commerce, Office of Technical Services, Washington 25, D. C. Bulletin AIC-280, "Manufacture of Cellulose Pulps from Straw." Reviews two processes which produce high yields of strong, easy-bleaching papermaking pulps from straw. Further advises that costs of collecting and baling straw have been lowered, and that a simple method of preserving the baled straw has been worked out.

Supt. of Documents, U. S. Government Printing Office, Washington 25, D. C. Booklet, "The United Nations Today," covers the purposes of the United Nations; 1945 and 1951; United Action Against Aggression; The United Nations at Work; etc. Price 10c. Also, bulletin, "United Nations — 60 Countries Pledged to Act." Briefly discusses: The United States and the United Nations; Saving Disaster's Children; Fighting Against Disease; Finding Homes for Refugees; etc. Price 5c.

United Nations, Dept. of Public Information, New York, N. Y. Bulletin, "United Nations Day." Tells, What is United Nations Day? Where Does UN Stand Today? United Nations Work for Social Progress; etc.

Frank G. Hough Co., 747 Seventh St., Libertyville, Ill. Catalog No. 208, "Hough Payloader, Model HY." Illustrates important design details and provides complete specifications.

Twin Disc Clutch Co., Racine, Wis. Brochure, "Cross Country." Describes 60 applications of friction clutches and hydraulic drives in many types of machinery and equipment. Based upon travels of engineers who work with industrial designers and engineers to harness industrial horsepower.

Wilbur & Williams Co., 130 Lincoln St., Boston (Brighton) 35, Mass. "Wilbur & Williams Penetrating Protective Paints." Four page technical folder containing a quick reference index to the most suitable coatings for rust prevention, chemical corrosion, and dampness.

Williams Gauge Co., 1620 Pennsylvania Ave., Pittsburgh 33, Pa. Bulletin, "Williams-Hager Flanged Silent Check Valve." Includes technical data, cut-away versions of two types of valves and a series of installation photographs.

Clark Equipment Co., Buchanan, Mich. Booklet, "How the Products of Clark Serve Industry." Describes and illustrates industrial towing tractors, fork-lift trucks and attachments, powered hand trucks and stackers. Includes complete listing of world distributor organization.

NEW PRODUCTS

Rectangular Shaped Sleeves

A new addition to the line of corrugated paper products and specialties made by Shelton Manufacturing Co., Inc., called "Shelltube," is a single-lined tube, scored for rectangular shaping and securely gum taped at the seam.

It is being made available in tubed rolls of 250 lineal feet or cut to specified lengths. Minimum tube size is 3" but practically unlimited beyond this dimension. Stock weights are 35, 55, 70 and 100 pound substance. Popular sizes 5¼", 8¼", 11½" and 14½" will be kept in stock to provide immediate delivery. Samples and detailed information can be obtained by writing to Shelton's Newark plant, 591 Ferry St., Newark 5, N. J.

INSTALL WAXING MACHINE

The Rosenow Paper & Supply Co., Menasha, Wis., has completed an addition to their plant which made room for installation of machine for waxing paper, and other converting equipment.

For three years they have been converting Patty Papers, Delicatessen Papers, sandwich wraps, etc., obtaining waxed papers from outside sources. During this time the call made upon them has increased so it was necessary to install a machine to wax their own paper.

CROCKER MAKES DAY-GLO

Crocker, Burbank Papers Inc., Fitchburg, Mass., and Switzer Brothers, Inc., Cleveland, Ohio, announce the licensing of Crocker, Burbank Papers Inc. by Switzer Brothers, Inc., for manufacture and distribution of daylight fluorescent coated papers, to be sold under the Switzer DAY-GLO trade-mark.

EUROPEAN SPOTLIGHT

The month of September did not show much important news. Only we may draw attention to the fact, that Sweden now officially announced that prices for woodpulp for delivery in the fourth quarter will remain the same as for the third quarter, and so for the second time in succession prices remain unchanged. Nevertheless, reports from Sweden tell us, that the woodpulp market is far from stable, and it remains very difficult to say anything about future price level.

In *England* this news about the unchanged prices for Swedish wood pulp was received with much satisfaction, the more as the Norwegian wood pulp producers followed this example by quoting unchanged prices. This country quotes now for bleached sulphite £110 a ton, for dissolving pulp £114/115, and for strong sulphate £100 to £105 a ton. There is much uncertainty about the quantities to be expected for shipment to European countries, as these quantities will chiefly depend from sales to America. At this moment, the American reaction to fourth-quarter prices is still unknown here. England raised production to the pre-war output in June, for the first time since world war II. But newsprint is still pretty much below the pre-war average, output being only about 65%. Production of boards increased considerably following a considerable increase of waste paper output. Nevertheless, the Board of Trade announced that it will be necessary to collect more waste paper.

Netherlands output in 1950 has now been announced to have been 318,992 tons, against 281,321 tons in the preceding year. This is a new record, being fairly above pre-war figures.

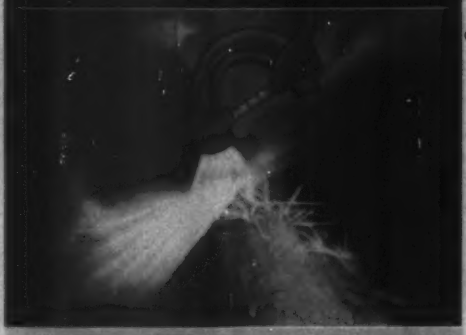
Czecho-Slovakia is so happy as to have enough wood and coal for the important paper industry and before the war it was an important paper exporting country. After the war there was a considerable fall-back but reports from this country now announce a rapid recovery. The 5-years plan pays much attention to re-foresting. This plan, covering a period from 1948 to 1953, aims at an increase in production of woodpulp of 25%, of paper of 35% and of boards of 49%.

Poland, in the town of Skolwin, suburb of Szczecin, a papermill is rebuilt and at the same time enlarged and modernized. It is one of the former mills of the famous German Feldmühle-concern, at Stettin-Kabelwitsch, rebuilding of which commenced already in 1949. The production in this mill will start again in the middle of next year. Among other materials, straw will be used in making pulp.

Italy has 400 papermills in which about 30,000 men earn their daily bread. It ranks seventh among world's largest paper producers. The Italian papermarket however, still is an exception to all rules on the European market. Prices continued to fall during the month of August, and demand was totally insufficient. Some papers, such as glassine, fell very considerably in price, but boards maintained their price level rather satisfactorily. Newsprint is scarce in Italy too, and prices were increased. There is a legal maximum for newsprint prices but we understand that often prices are offered high above these legal maximums. Import of woodpulp decreased during the first seven months of this year, and so did import of ready paper. Exports showed a considerable increase. Further falling-down of prices is generally expected here.

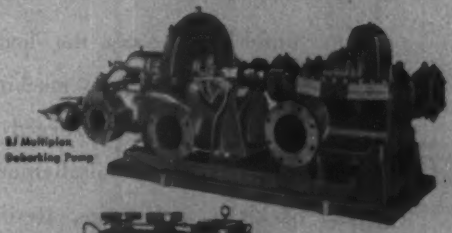
Austrian paper industry is largely reconstructed and modernized with E.R.P. help. This reconstruction program, ending 1953, calls for an increase of capacity of more than 50%, bringing production from 253,000 tons to 390,000 tons. This requires more than 900 million Austrian Schilling, of which 75% is financed by E.R.P. The paper machines, needed for this program, are bought from Germany and from the United States. Some mills have already received new and modern equipment, such as Papierfabrik Steyremühl, which installed a newsprint machine, the Papierfabrik Schuppler at Laakirchen,

Your debarking PUNCH is only as potent as the pumping MUSCLE behind it...

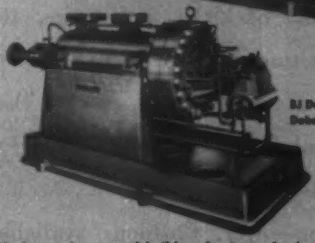


BJ DEBARKING PUMPS

put real *wallop* into your hydraulic debarking. They have the pressure strength and the operating stamina to work continuously at full bark-blasting efficiency! Multiplex models deliver up to 1600 psi with capacities as required. Double Case models provide pressures up to 2800 psi and capacities to 1 million pounds per hour. BJ Debarking Pumps are engineered to your particular equipment and power set-up. Write for detailed performance data or recommendations on your debarking pumping—without obligation, of course.



BJ Multiplex Debarking Pump



BJ Double Case Debarking Pump

BJ also engineers and builds pulp, screw feeder, and other special centrifugal pumps for pulp and paper applications.

Byron Jackson Co.

P.O. Box 2017 Terminal Annex, Los Angeles 54, Calif.

which received a new and very rapid Yankee plant for making mechanical pulp, pulpmasters, cutters, etc., and the Welser Papierfabrik at Wels, with a Yankee machine 390 cm wide, the largest of Austria, producing 6000 tons annually. Paper production in Austria shows much progress, being now monthly 21,000-22,000 tons. There are no difficulties in selling the output.

A private company in *Greece* intends to build in Larissa a new wood-pulp mill, able to fill this country's most urgent needs.

From *Sweden* reports were received about some difficulties with the import of coal. Though there is some lack of coal at this moment, the gap may not be very large. However, it will be necessary to obtain fuel wood and this means less wood and less labour—quite an important thing—available for the pulp industry. Exports in June reached a top level with 265,000 tons against 160,000 tons in June 1950. Price changes during this year are clearly reflected by the kronor-worth of this export: 90 million kronors in June 1950, and . . . 430 million kronors in June 1951!

Now that *France* did not succeed in getting an emergency allocation of 3000 tons newsprint from the International Raw Materials Commission at Washington, there is considerable concern among some French newspaper publishers. Stocks in France must be very low and are said to be good for only a few days. Consumption of newsprint is reported to be about 340,000 tons annually, against a home production of only 290,000 tons annually. The gap of 50,000 tons must be filled by import but, as in many other countries, France is at a loss to know how.

LOVEJOY L-R FLEXIBLE COUPLINGS

They unfailingly carry the load between powerful motors and heavy machinery in the paper industry. These rugged couplings effectively counteract misalignment, vibration, backlash and surge. Resilient, free-floating load cushions, suspended between strong metal jaws, may be changed without shut-downs. No metal-to-metal transmission. No metal wear. No lubrication—ever. Cushions available for every duty . . . 1/6 to 2500 H.P.

Get the complete Lovejoy catalog with Quick-Reading Selector Charts.

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Also Mfrs. Lovejoy Universal Joints and Lovejoy Variable Speed Transmissions.

CUSTOMS COURT CASES

A Seattle importer of paper for newspaper use has filed protests against the action of Customs officials in holding five shipments dutiable as printing paper and denying free entry as standard newsprint, according to Warren B. Bullock, Manager of the Import Committee of the American Paper Industry. The official action was based on several characteristics in which the imported paper differs from standard newsprint as described in Treasury Department rulings. Some of the papers carry an excess of filler, others are excessively sized, some are composed of more than 30 percent chemical fibre and others are in novel news thicknesses. The protests were placed on the October docket of the Customs Court at Seattle, but will not be tried until a later date.

An importer of wrapping paper carrying screenings has abandoned his claim that the paper, classified for duty as miscellaneous wrapping paper at 25 percent, was properly dutiable as kraft wrapping paper at 20 percent.

Waxed crepe paper imported at Detroit has been classified for duty as creped paper at 3 cents per pound and 7½ percent and not as waxed paper at 1½ cents per pound and 10 percent, and ruled and unruled cards imported from Canada have been classified for duty at the rate for bristol boards, not at the lower rate for paperboards.

FIGHTING PAPER WANTED

Invitation to bid has been issued by the New York Quartermaster Procurement Agency, 111 East 16th street, New York 3, N.Y., on QM-30-280-52-314, covering Towel, paper, single fold, 150 sheets per pkg., 63,750 pkg. Bids will be opened October 30, 1951, at 11:00 a.m. (EST) at the New York office. This procurement is for the U. S. Navy.

QM-30-280-52-315, covering Paper, toilet tissue, 1,000 sheets to roll, 800,000 rolls; and Towel, paper, single fold, 150 sheets per pkg., 122,000 pkgs. Bids will be opened October 30, 1951, at 11:00 a.m. (EST) at the New York office. This procurement is for the U. S. Marine Corps.

QM-30-280-52-337, covering Dispensers, paper cup, 4,560 each. Bids will be opened October 31, 1951, at 11:00 a.m. (EST) at the New York office. This procurement is for the U. S. Army.

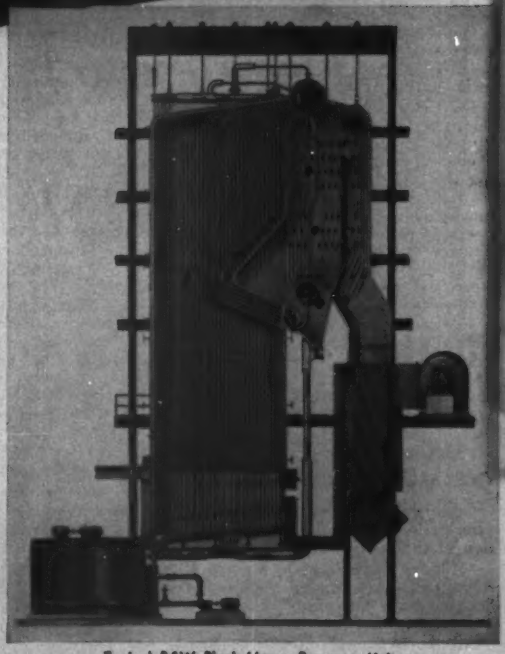
QM-30-280-52-349, covering Paper, typewriter, manifold, sulphite, sub. 9, various sizes and colors, 75,930 reams. Bids will be opened October 24, 1951, at 11:00 a.m. (EST) at the New York office. This procurement is for the U. S. Navy.

CONNOISSEUR

one well versed in any subject; especially one who understands the details, techniques, or principles of a fine art.

To the fine art of handling and burning black liquor, B&W brings an aggregate of 17 years' experience. This practiced understanding of the details, techniques, and principles of black liquor recovery is evidenced by the number of Babcock & Wilcox installations placed in successful operation since 1935—totaling more than *17 thousand B&W tons of recovery capacity.*

B&W technicians will be glad to discuss your problems of burning and recovery: in connection with black liquor . . . or with any of the sulphite-liquor processes. The Babcock & Wilcox Co., 85 Liberty St., New York 6, N. Y.



Typical B&W Black Liquor Recovery Unit.

P-962

ASSOCIATIONS

ALKALINE PULPING CONFERENCE

The Alkaline Pulping Conference held their 5th Annual Meeting at the John Marshall Hotel in Richmond, Va. on September 26 and 27. The attendance was 197 men plus 25 women. All seemed to be agreed that the four sessions, one in the morning and afternoon of each of the two days, had papers of a particularly high quality. All were also agreed that the sessions were too crowded.

It seemed that either there should be additional time or less papers. One particular lecturer was told he could have 30 minutes to deliver his subject and when he arrived in Richmond at the first session, he was told each speaker would be allowed 15 minutes.

The men in attendence met for a luncheon both days as a group. The speaker at luncheon on the first day was the Hon. T. Nelson Parker, Mayor of Richmond, who briefly welcomed everyone to Virginia and Richmond, and the speaker on the second day was Leonard A. Blackburn, Pres. of Slaughter, Saville & Blackburn, Inc., Richmond, Va., who spoke on the free enterprise system and what he thought could be done to strengthen it.

On Thursday morning the entire group was entertained at breakfast by a large group of equipment and material suppliers.

On Friday, the 28th of September, the group went by bus to visit the mill of the Chesapeake Corp. of West Point, Va., spending the morning touring the mill. Then they continued on to Williamsburg where they enjoyed luncheon at the Williamsburg Inn as guests of the Sutherland Refiner Corp., Trenton, N. J., and after lunch went on a sightseeing tour of the reconstructed Colonial Capital of Virginia, Williamsburg.

The meeting certainly must be considered a successful one, but it is suggested that in the future it would be of more value to the listeners and certainly more courteous to the speakers if they were allowed more time to present their subjects.

OCT. PROGRAM–CHICAGO TAPPI

October 15, 1951; Dinner—6:30 P.M. (Cocktails—5:30 P.M.); Bar Association—12th Floor 29 South LaSalle St.

"Military Packaging" by Clinton K. Royce, Head, Packaging Section, Office of Navy Material, Washington, D. C.

An interesting and informative Navy film, "Pack it Right," will be shown first.

This will be followed by Mr. Royce's address which will highlight new developments in protective packaging.

Opportunity will then be given for *general* questions.

In order to obtain a better understanding of methods and materials involved in protective packaging on the part of interested manufacturers, converters, merchants and users, the meeting will then split up into 4 sections, each devoted to demonstrations and questions related to specific subjects, as follows:

SECTION I—Greaseproof Moisture Vaporproof Barriers—Bags—Sealers—involved in methods 1-A1, 1-A2, 1-3A and 1-A8.

SECTION II—Waterproof Barriers—Case Liners and Sealers

SECTION III—Volatile Corrosion Inhibitor Treated Packaging Materials

SECTION IV—Tape and Sealed Rigid Metal Containers

TIMING

Dinner	6:30-7:25
Movie	7:25-8:00
Mr. Royce	8:00-8:30
Questions	8:30-8:45
Panel	8:45-9:15

Penjerdel's 25th Anniversary Meeting at Pocono Manor

In the twenty-five years since the founding of the Pennsylvania-New Jersey-Delaware Division of the American Pulp and Paper Mill Superintendents Assn., there has never been a meeting as well managed and generally successful, or more thoroughly enjoyed by those present, than the 25th Anniversary celebration at Pocono Manor. Approximately 200 men and 120 women were registered at the meeting.

Although there were two excellent and well attended technical sessions in the morning and afternoon of Sept. 29, this was obviously a festive occasion, intended for enjoyment and with this intent being completely fullfilled.

Pocono Manor is located in one of the most beautiful spots of the Pocono Mountains, near Stroudsburg, Pa.

The weather during the meeting was excellent, being sunny and yet cool enough to require warm clothing.

Registration for the meeting began on Thursday afternoon, September 27, and continued through Friday and Saturday. The principal events on Friday morning were golf tournaments for both men and ladies. The Ladies also had a putting contest at 10:30 AM.

Lunch was provided at the golf club for the golfers and in the main dining room for the others.

On Friday afternoon there was a fashion show for the ladies and a softball game for the men. Teams representing the superintendents and the peddlers were chosen for this game which was won by the latter. The enjoyment of this game was marred by an accident when Loy Bixler of Reigel Paper Co. and Al Hartley of Nopco collided when attempting to catch a fly ball. Although Loy suffered a cut under the left eye from his broken glasses and Al received some severe rib bruises, no serious damage was done.

For the Friday evening meal the group was transported in hay wagons to "The Meadows" and served with a de luxe picnic. The dress for the occasion as well as the other events of that evening consisted of dungarees and blue work shirts for the men and calico dresses for the women. However, the chilly weather made it necessary to supplement these costumes with something warmer, which resulted in some unusual combinations.

One of the most popular events on the program was the "County Fair" on Friday night. This affair was followed by a square dance at which Oscar Stamet was one of the star performers.

On Saturday morning the entire group was brought together at 8:00 AM for breakfast in the main dining room. The PPPs (Penjerdel, paper peddlers) put on an excellent entertainment program of songs and comedy. This was the fourth PPP program and each one seems to be a little better than its predecessor.

Al Hartley of Nopco, after the success of his mouse swallowing performance at the Spring meeting was scheduled to swallow a snake but because of his injury in the softball game his place was taken by Bobby Greene of H. Waterbury & Sons. With so many live snakes in evidence it is difficult to realize that the one Bob actually swallowed was made of taffy.

Immediately following the entertainment the men gathered in Manor Hall for the business meeting and elections. This meeting was conducted by Glen Renegar, who has been Chairman of the Division for the past two years.

The newly elected officers are as follows: Chairman, Elmer Mitchell, Glassine Paper Co.; 1st Vice Chairman, George Suydam, Reigel Paper Corp.; 2nd Vice Chairman, Andrew Luettgen, P. H. Glatfelter Co.; 3rd Vice Chairman, Clarence Kingston, Hammermill Paper Co.; Secretary-Treasurer, Joseph Paciello, E. I. du-Pont de Nemours & Co. Inc.

At the conclusion of the business

"HOLYOKE"
CALENDER ROLLS

HOLYOKE MACHINE COMPANY

CALENDER ROLLS for the PAPER and TEXTILE INDUSTRIES
WATER FILTRATION EQUIPMENT
HOLYOKE, MASSACHUSETTS

Figure 1—Saturday morning Technical Session L-R Ray Curtis, Elmer Mitchell, George Suydam, Howard J. Wright. Figure 2—Saturday afternoon Technical Session L-R Andy Luettgen, Harold Brakewood, K. S. Whisler, Elmer Mitchell. Figure 3—PPP Entertainment Group at Saturday morning breakfast. Figure 4—Best Costume at Picnic, Harry Holmes. Figure 5—Association Officers at Picnic L-R Ray Barton, Harry Weston, Howard Street, Glen Sutton, Harry Hadley, Glen Renegar. Figure 6—Square dance at Manor Hall.

meeting the morning technical session was started under the direction of Elmer Mitchell and George Suydam. The following papers were presented:

1. "Practical Operation of the OCO Water System" by Howard J. Wright, chemist, Downington Paper Mfg. Co., Downingtown, Pa.

2. "Meeting the Challenge of Maintenance and Lost Time in the Paper Mill" by Ray Curtis, chief engineer, Scott Paper Co., Chester, Pa.

There were lively discussions following each paper.

The entire group gathered in the main dining room for the joint luncheon at 12:30 P.M. Saturday. Glen

(Continued on page 40)

patent pending

A better way to wash pulps!

The use of pressure to wash pulp, instead of the vacuum or diffusion principle, has been under development for many years. Now, climaxing this research, the Pressure Washing System is offered to the industry as a commercially-proved method, applicable to both chemical and semi-chemical pulps. Here are some of the advantages it offers you:

High capacity—***300 A.D. tons per day plus***

Low power requirements

Low water consumption

Extremely flexible installation

Low capital investment

Low maintenance costs

Low labor costs

No foam

Clean pulp—***to meet any specifications***

A three-stage washing installation on kraft. Pulp passes through the press on left, up inclined screw conveyor, and through press in center. Final press is shown in rear.

Last, but not least, Pressure Washing offers reduction of stream pollution and savings in evaporator costs that are unparalleled. Systems can be furnished in two, three, and four stages to fit individual mill requirements. Write for complete information on this revolutionary development.

Designed & Engineered by

SUTHERLAND, Inc.

Sales & Service

SUTHERLAND REFINER CORP.

Trenton 8, N. J.

Manufactured by VALLEY IRON WORKS CO., Appleton, Wisconsin

PRICES

The prices below reflect market quotations in New York at the mill level on standard grades. Does not include spot offerings.

PAPER AND BOARD

Standard News, Delivered Ports
Rolls, contract, per ton $114.00/116.00
Sheets ..... 130.00/ —

F.o.b. Mills. C.l. Prt. allowed, dock, N. Y.

Kraft— pr cwt., 40# base wgt.
Standard Wrapping Rolls ..... $7.75/$8.00
No. 1 Wrapping Rolls 8.25/ 8.50
Standard Bag ..... 7.50/ —

Tissues— per ream 24x36 (480) 10 lbs. 2500 lbs or more

Wh. No. 1 Frd.	$2.25	/$2.40
Wh. No. 1 MG	2.25	/ 2.40
Wh. No. 1½	1.95	/ 2.05
Wh. No. 2	1.75	/ 2.00
Kraft Anti-Tar 20x30	2.13	/ 2.23
White Anti-Tar 20x30	2.20	/ —

Toilet— per case or 100 rolls—1 M sheets
Unbleached 4½x4½ ..... $8.00/$8.25
Unbleached 4½x5 ..... 6.60/ —
Bleached 4½x4½ 10.00/12.50
Bleached 4½x5 ..... 9.85/ —
Per Case of 50 roll —2000 sheets
Unbleached 4½x4½ ..... $8.00/$9.75
Bleached 4½x4½ ..... 6.95/ —
Per Case of 100 rolls—1000 sheets
Facial, 4½x4, 2-ply ..... ‡ $8.95/10.15

Paper Towels— per case of 3750
Wh. Jr. M'tif'd 9½x9½ $6.40
Br. Sr. M'tif'd 9½x12 ..... 4.10
Br. Jr. M'tif'd 9½x9½ 3.90
Br. Jr. Sgl. fold 9½x10¾ 3.95
Bldhd. 7½x11, 24/25 rolls $7.00/7.55

Manila, per cwt.
No. 1 Jute Tag, 100-lb., sheets* .. $20.55/22.55
Reg. Jute M.F. 40-lb., sheets* ... 19.50/21.50
Wrapping Manila 8.75/10.50
Printing Manila 10.50/12.00
* Less usual allowance for rolls.

Gummed Tape— per bbl., 500 bdls. or more

90-lb. 375 ft. GSI	$7.20	/ —
60-lb. 600 ft. GSI	7.20	/ —
35-lb. 800 ft. GSI	8.28	/ —
35-lb. 500 ft. GSO	6.21	/ —

Boards per ton—

Filled News	$107.50/ —
Plain Chip	105.00/107.50
Bldhd. Mix. L-d. Chip	147.50/ —
White Pat. coated .020	170.00/ —
Kraft Liners 42 lb.	115.00/117.50
Kraft Corr. .009	122.50/126.00
Binders Boards	137.50/140.00

The following prices are representative distributors' resale prices:

Rag Content Bonds and Ledgers—
White, 20 lb.

Bonds	4 Ctns.
	per cwt.
100% Rag Ex. No. 1	$70.45/$75.90
100% Rag	62.65/ —
75% Rag	48.15/ —
50% Rag	38.90/ —
25% Rag	31.65/ 33.00

Ledgers	4 Ctns.
	per cwt.
100% Rag Ex. No. 1	$72.65/$72.80
100% Rag	63.90/ —
75% Rag	49.40/ —
50% Rag	40.20/ —
25% Rag	33.00/ 34.30

Sulphite Bonds and Ledgers
White, 20 lb.

Bonds	4 Ctns.
	per cwt.
Watermarked	$19.00/$20.50
Plain	18.40/ 19.50

Ledgers	4 Ctns.
	per cwt.
Watermarked	$20.30/$21.80
Plain	19.35/ 20.80

White Book

Conversion Coated	Case
	per cwt.
No. 1	$21.90/$24.65
No. 2	22.15/ 23.40
No. 3	21.90/ 22.40
Machine Coated	
No. 1	$18.40/$18.90
No. 2	16.65/ —
Uncoated	
No. 1 Antique (Watermarked)	$18.65/$19.65
Offset	18.65/ 19.90
A Grade E. F.	18.10/ 19.90
A Grade S. C.	18.65/ 19.40
B Grade E. F.	18.40/ —
B Grade S. C.	17.40/ 19.15

‡ Indicates a price change.

MARKET WOOD PULP

Fourth Quarter Contract Prices. Per Short Air-Dry Ton

	Varying freight allowances		On Dock Atlantic Ports		
	*U. S.	Canadian	*Swedish	*Finnish	*Norwegian
Groundwood	$92.50/ —	‡195.00/100.00			
Sulfate, Bleached	145.90/ —	190.00/200.00	$230.00/ —	$230.00/ —	$230.00/ —
Semi-bleached Sulfate	140.00/ —				
Sulfate, Unbl.	132.50/ —	145.00/175.00	200.00/ —	200.00/ —	
Sulfite, Bldhd.	140.00/ —	160.00/175.00	225.00/ —	225.00/ —	225.00/ —
Sulfite, Unbldhd.	132.50/ —	150.00/160.00	200.00/ —	200.00/ —	
Sulfite, Unbl'd (Glassine)		164.00/ —			
Soda, Bldhd.	140.00/ —	155.00/160.00			
Sulfite Screenings	72.50/ —				
Sulfate Screenings	67.50/ —				
Groundwod Screenings	60.00/ —				
Unbldhd Sulfate Siderums	132.50/ —				
Stand. News. Siderums	92.50/ —	106.00 —			

* OPS Ceiling, CPR 49 ‡ F.o.b. Shipping Point.

RAG MARKET

New Domestic Cotton Cuttings
OPS Ceiling Price, CPR 28
Delivered Mill Basis

Add 7½% Dealer Commission

No. 1 White Shirts	$21.00
No. 1 Unbldhd. Muslins	21.00
Bldhd. & Unbldhd. Underwears	21.00
Bldhd. Canton Flannels	21.00
No. 1 Light Silesias	16.00
No. 1 Light Prints	11.50
No. 1 Blue Overalls	14.50
Suntan Khakis	11.50

Add 10% Dealer Commission

Fancy Shirts	$10.00
Indigo Blues	10.00
Mixed Khakis	8.00
Corduroys	8.00
Cottonades	8.00
No. 1 Washables	6.50

Old Domestic Cotton Rags
(Prices to Dealers, f.o.b. Ship. Pt.)

	Per 100 lbs.
Mixed White	$5.00/$5.50
Cotton Pants & Overalls	4.25/ 5.00
Thirds and Blues, Repacked	4.00/ 4.25
No. 1 Roofing Rags	nominal
No. 2 Roofing Rags	nominal
No. 3 & 4 Roofing Rags	nominal

Bagging
(Prices to Dealers, f.o.b. N. Y.)
PRICES NOMINAL

	Per 100 lbs.
Foreign Gunny	$5.00/$5.50
Domestic Gunny, No. 1	5.00/ 5.50
Heavy Wool Tares	5.50/ 6.00
Foreign Manila Rope	8.50/ 8.75
Domestic Manila Rope	9.00/ 9.25
Jute Strings	6.00/ 6.50
No. 1 Sisal Strings	8.00/ 8.25
Paper Mill Tares	4.25/ 4.50
Foreign Scrap Burlap	4.25/ 4.50
Domestic Scrap Burlap	4.75/ 5.50
Austr. Wool Pouches	7.50/ 8.50
New Burlap Cuttings	7.00/ 7.50

WASTE PAPER MARKET

Prices to mills, per ton, f.o.b. cars shipping point (includes brokers' fee.) These quotations are an indication of the price range in each market on the date specified, as gathered from major dealers. Because of market instability, ALL PRICES ARE STRICTLY NOMINAL.

	New York	Philadelphia	Boston	Chicago
	Oct. 8	Oct. 5	Oct. 6	Oct. 2
No. 1 Mixed Paper	$14.00/ 15.00	$10.00/ 12.00	— / 13.00	$12.00/ —
No. 1 News	16.00/ 17.00	12.00/ 14.00	— / 15.00	15.00/ —
Over-issue News	20.00/ 22.00	20.00/ —	20.00/ 22.00	18.00/ —
Corrugated Containers	20.00/ 25.00	18.00/ 20.00	24.00/ 29.00	20.00/ —
Double Kraft Ld. Corr. Cuts	55.00/ 60.00	50.00/ —	55.00/ 70.00	55.00/ —
100% Kraft Corr. Cuts	80.00/ 90.00	80.00/ —	90.00/ —	85.00/ —
Used Sugar & Flour Bags	70.00/ 75.00	50.00/ —	45.00/ 76.50	50.00/ —
Super Resorted Br. Kraft	Nominal	65.00/ 70.00	60.00/ 83.00	50.00/ —
New Br. Kraft Env. Cuts	125.00/145.00	125.00/ —	120.00/140.00	100.00/ —
New Br. Kraft Cuts	100.00/125.00	115.00/ —	110.00/140.00	90.00/ —
No. 1 Gdwd Shvs.	60.00/ 70.00	16.00/ 50.00	65.00/ 75.00	35.00/ —
White Newshlanks	75.00/ 80.00	50.00/ 70.00	70.00/ 80.00	55.00/ —
No. 1 Flyleaf Shvs.	65.00/ 70.00	50.00/ 65.00	85.00/100.00	60.00/ —
No. 1 Soft Wht. Shvs.	130.00/170.00	135.00/145.00	165.00/185.00	125.00/ —
Super Soft Wht. Shvs.	160.00/175.00	150.00/165.00	180.00/200.00	135.00/ —
Hd. Wht. Shvs.	165.00/180.00	170.00/180.00	180.00/205.00	140.00/ —
Hd. Wht. Env. Cuts	180.00/200.00	190.00/210.00	190.00/225.00	150.00/ —
New Manila Env. Cuts	100.00/135.00	130.00/140.00	130.00/155.00	65.00/ —
Col. Tab Cards	90.00/ 95.00	75.00/160.00	85.00/110.00	85.00/ —
Manila Tab Cards	120.00/150.00	125.00/140.00	160.00/190.00	100.00/ —
No. 1 Mixed Ledger	85.00/ 95.00	75.00/ 85.00	67.00/ 90.00	95.00/ —
White Ledger	105.00/115.00	105.00/115.00	95.00/110.00	110.00/ —
No. 1 Book & Mag.†	33.00/ 37.00	23.00/ 30.00	30.00/ 50.00	17.00/ —
No. 1 Rep'd. Hvy. Books‡	43.00/ 50.00	30.00/ 40.00	45.00/ 60.00	40.00/ —

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% groundwood.

MATERIALS

Aluminum sulfate:		
comi. bags, wks.	cwt.	1.65
iron-free c.l.		3.25

HANDLING *All the Way*
Pulpwood to Paper

The Pulp and Paper Industry is just one in which the diversified line of Jeffrey equipment meets practically all handling requirements. There is a proved unit to handle it economically and to your complete satisfaction . . . whether its pulpwood, rags, chips, lime, sulphur, straw, salt cake, paper rolls, packages of paper or board . . . as well as shredders and pulverizers for reducing material to a uniform product.

Belt Conveyors
Chip Conveyors
Chain Conveyors
Crushers (salt cake)
Elevators (bucket)
Feeders

Log Haul-ups
Re-chippers
Chains
Unloaders (barge)
Transmission Machinery

Photos show various applications of Jeffrey Material Handling Equipment handling chips and pulpwood. Whether from barges, yard storage or railroad cars Jeffrey Belt and Chain Conveyors take it away as fast as it comes.

Note the heavy type chain in the top installation view. This chain is built to take the severe punishment of felling pulpwood day after day. Chain was our earliest product. We know how to make it exceptionally well.

THE JEFFREY MANUFACTURING COMPANY

Established 1877

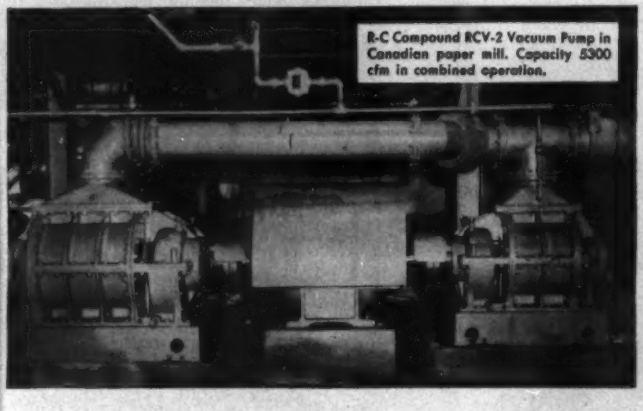
931 North Fourth St., Columbus 16, Ohio

Complete Line of Material Handling, Processing and Mining Equipment

Baltimore 2 Boston 16 Cincinnati 2 Detroit 13 Houston 2 New York 7 St. Louis 1
Beckley, W. Va. Buffalo 2 Cleveland 15 Forty Fort, Pa. Jacksonville 2 Philadelphia 3 Salt Lake City 1
Birmingham 3 Chicago 1 Denver 2 Harlan, Ky. Milwaukee 2 Pittsburgh 22

Jeffrey Mfg. Co. Ltd., Montreal, Canada
British Jeffrey-Diamond Ltd., Wakefield, England
Jeffrey-Galion (Pty.) Ltd., Johannesburg, S. A.
The Galion Iron Works & Mfg. Co., Galion and Bucyrus, Ohio
Galion (Great Britain Ltd.), Wakefield, England
The Ohio Malleable Iron Co., Columbus, Ohio
The Kilbourne & Jacobs Mfg. Co., Columbus, Ohio

Alcohol, ethyl:		
tax free, dms. c.l. ..... gal.	1.01	/ 1.05½
dnld. East Miss.		
Alcohol, methyl:		
Synthetic, Zone 1, dms.		
c.l. fit. alld. ..... gal.	.44	
Casein, acid prec.:		
dom. sh. pt. c.l. ..... lb.	.38	/ .41½
imp. ex. dock ..... lb.	.28½	/ .40
Caustic soda:		
c.l. wks. solid, 76%, cwt.	3.35	
flak. & grd. 100-lb. drums ...	3.75	
liquid 50% tanks	2.55	
liquid 70% tanks	2.65	
China clay:		
dom. air-float. filler, c.l. wks. ton	10.00	
water-washed, lump, filler	11.00	
coating	17.60	/30.50
imported, ex whse. ... short ton	15.20	/28.35
Chlorine:		
single-unit tanks, works .. cwt.	2.70	
multi-unit ..... cwt.	3.20	/ 4.40
Formaldehyde:		
USP, inh. dms, c.l. wks. ... lb.	.0625	/ .0675
l.c.l., E. wks.	.0675	/ .0725
Fuel oil:		
Number C, No. 6 Cal. bry		
tanar, refinery ..... bbl.	1.95	/ 2.15
light ..... bbl.	2.00	/ 2.25
Hydrogen peroxide:		
USP, 35% cbys. E. of Miss. lb.	.23½	/ .26½
Lime:		
sydrated, bags, wks. ..... ton	13.50	
Rosin:		
B gum, drms, c.l. Savan .. cwt.	7.00	/ 9.08*
G, H, I, K ..... cwt.	9.00	/ 9.49*
FF, wood, do. ..... cwt.	6.80	/ 7.30*
* OPS Ceiling, CPR 52.		
Rosin size:		
70%, gum & pale grds., tank cars, south, sh. pt. ..... cwt.	7.20	/ 7.35
Salt cake:		
dom. bulk, c.l. wks. ..... ton	17.00	
wks. frt. all. ..... ton	20.00	/22.00
Soda ash:		
light, 58%, bags, wks.	1.50	
bulk ..... cwt.	1.30	
Sodium silicate 40°:		
turbid. c.l. wks. ..... cwt.	1.30	/
l.c.l. wks. ..... cwt.	1.60	/ 1.85
Sodium peroxide:		
dms. c.l. E. of Miss. ..... lb.	.21	
l.c.l. do. ..... lb.	.21½	/ .22
Soybean, protein:		
chem. isol, wks. c.l. ..... lb.	.24	/ .28
Cinn. and Chic.		
Sulfuric acid:		
60° Be. cbys. cl. wks. ... cwt.	1.75	/ —
l.c.l. wks. ..... cwt.	2.05	/ 2.85
Sulfur:		
crude, c.l. mines, contract, long ton	21.00	/22.00
f.o.b vessels Gulf	22.50	/23.50
Sulfur dioxide:		
liquid, coml. cyl. wks. ..... lb.	.09	
multi-unit cars ..... lb.	.0535	
Starches:		
pearl corn, bags, c.l. wks. .. cwt.	6.09	/ —



YOU GET ALL 5 IN R-C VACUUM PUMPS

Many years of outstanding performances have proved the sound values of R-C Cycloidal Vacuum Pumps, with these 5 important features:

1. **LOW POWER CONSUMPTION**—because units are recommended, either single or compound, to operate at the most efficient point.
2. **NEGLIGIBLE FRICTION LOSSES**—no contact between impellers or impellers and casings.
3. **HIGHER SPEEDS**—permitting direct connection to standard motors, saving first cost, space and weight.
4. **FLEXIBILITY**—to meet varying demands; suction automatically overcomes resistance in system.
5. **DEPENDABILITY**—long-time, attention-free operation, due to simplified design and construction.

Ask for details on R-C Vacuum Pumps and other equipment to handle gas and air in paper mill operation.

Roots-Connersville Blower Corporation
510 River Avenue, Connersville, Indiana

ROOTS-CONNERSVILLE
BLOWER BUILDERS SINCE 1854
ONE OF THE DRESSER INDUSTRIES

PENJERDEL MEETING

(Continued from page 36)

Renegar was toastmaster and introduced the group of officers of the national association and guests from outside the Division. These included, Glen Sutton, national president; Harry Hadley and Howard Street, national vice-presidents; Ray Barton, trustee and past national president; E. T. A. Coughlin of the New York Canadian Division; and Harry Weston, national secretary-treasurer. Other guests from outside the Division included, L. J. Whims and Russel Lewis of Ohio Boxboard Co.

The Saturday afternoon session was conducted by Elmer Mitchell and Andy Luettgen. The following papers were presented: "Printing Quality Requirements of Folding Boxboard" by Henry J. Abernathy of National Folding Box Co., New Haven, Conn. Mr. Abernathy was unable to attend the meeting so the paper was presented by Harold Barkewood of the same company.

The second paper was entitled "The Relation of Quality Control to Operation" by A. S. Erspaner, technical director and K. S. Whesler, manager of technical control, P. H. Glatfelter Co., Spring Grove, Pa. Mr. Whesler presented the paper.

Discussion periods followed the presentation of each paper.

At 6:00 P.M. on Saturday evening the peddlers were hosts at a cocktail party which was followed by the Banquet at which Glen Renegar was toastmaster. Mr. Renegar introduced the guests and the new officers after which he turned the leadership of the Division over to Elmer Mitchell, the new chairman.

"Tycol Acylkup boosts bearing life... smooths the way for heavier loads"

Of course! Tycol Acylkup Bearing Grease "stays put" . . . keeps anti-friction bearings running smooth and cool. Finest quality neutral oils give it high load-carrying capacities. Tycol Acylkup is firmly resistant to the washing action of water. Its dependable lubricating abilities lengthen bearing life and reduce maintenance costs. Call your nearest Tide Water Associated office for further information.

TYCOL

INDUSTRIAL LUBRICANTS

Boston • Charlotte, N. C. • Pittsburgh
Philadelphia • Chicago • Detroit
Tulsa • Cleveland • San Francisco

TIDE WATER ASSOCIATED OIL COMPANY

17 BATTERY PLACE NEW YORK 4 N.Y.

SEND FOR A FREE COPY OF "TIDE WATER ASSOCIATED LUBRICANIA"

The golf and door prizes were then presented. The final door prize was a live pig.

After the banquet there was an excellent two hour program of entertainment followed by dancing until 1:00 A.M. at Manor Hall.

The following officers and committee chairmen are to be congratulated for their successful production of such a fine meeting.

Convention Officers:—Glen T. Renegar, Chairman; Elmer Mitchell, 1st Vice-Chairman; George Suydan, 2nd Vice-Chairman; Andrew J. Luettgen, 3rd Vice-Chairman; Joseph A. Paciello, Secretary-Treasurer; Howard H. Street and L. H. Didwell, Finance Committee; Walter B. Morehouse, Chairman, Industrial Affiliates.

Committee Chairmen: — Program, Andrew J. Luettgen; Entertainment, L. H. Bidwell, Jr. and James Traill, Jr.; PPP's, Walter B. Morehouse; PPP's Breakfast, Alan Boyd; Golf, Alfred M. Hartley; Hospitality, Elmer Mitchell and Howard H. Street; Registration, Joseph A. Paciello; Get-together Party, John C. Dieffenderfer; Ladies Program, George Suydan.

Ladies Committee: — Mrs. Glen Renegar, Mrs. Elmer Mitchell, Mrs. George Suydam, Mrs. Andrew Luettgen, Mrs. L. H. Bidwell, Jr., Mrs. James Traill, Mrs. Howard Street, Mrs. Alan Boyd, Mrs. Joseph A. Paciello and Mrs. Al. Hartley.

APMEW
UNIVERSAL
PAPER PULP MILL
350 Patents

makes
ALL KINDS OF PAPER PULPS
from
ALL KINDS OF PAPER PULP RAW MATERIALS

Produces
SULPHATE, SULPHITE LONGFIBRE MECHANICAL PULPS from PULPWOOD, SAW MILL WASTE, WASTE PAPERS, etc.

APPROXIMATE COST:
50 Tons Daily $121,000.00

MAKES BETTER PAPER WITH LOWER PRODUCTION COSTS.

DE-COLORS and DEFIBERS COLORED BROKE at same time.

USUALLY CAN EARN INVESTMENT SIX TIMES EVERY YEAR.

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Paper Industry Economics

Discussed at Chicago TAPPI

The general stability of the paper industry, coupled with its recent expansion and modernization, places it high on the list of those industries presenting sound investment risks. This view was expressed by A. Newell Rumpf, vice-president of the Harris Trust Co., Chicago, in an address before the opening session of Chicago TAPPI's 1951-1952 season. Seventy-six members and guests attended the dinner meeting.

Officers for the current year are as follows: chairman is V. V. Vallandigham, Kelco Co.; vice-chairman, A. Duetsch, Container Corp.; secretary, C. Krebs, Atlas Boxmakers Inc., and treasurer, J. R. Fulghum, Socony-Vacuum. The group meets on the third Monday of each month.

Declaring that the banker's interest naturally lies in the financial welfare of the firm securing a loan, Mr. Rumpf noted that the paper industry has in the past few years undertaken expansion plans equaled by few industries in the United States. "Since 1945," he declared, "the productive capacity of the paper industry has increased from 19,400,000 tons to a rated capacity of 25,500,000 tons in 1950. Current figures indicate that the capacity buildup in the steel industry during the same period has amounted to 8,700,000 tons. Percentagewise, the paper increase, amounting as it does to 31.4 per cent, compares most favorably with an increase in steel capacity of 9.1 per cent."

That a successful bank must necessarily determine the risk involved before granting any industry a short- or long-term loan is obvious, Mr. Rumpf continued. He listed four considerations taken by bankers in their deliberations and decisions as to the stability of any firm: (1) Character and ability of management; (2) financial assets; (3) operations, and (4) prospects. Character, he declared, is determined from past records and history, while ability is a matter of opinion and appraisal of individuals, with the operating record a yardstick of measurement.

"If we could take a financial statement," he went on, "and by analyzing the figures alone assure ourselves regarding the standing and goodness of a risk, the matter would be a simple procedure." The speaker explained that certain portions of a financial statement are not considered of value in determining a business' soundness. For example, fixed investments, while necessary to industry, are not given much weight by a short-term lender, except possibly as a basis of analysis to assure that such investment is not out of proportion to the capital investment. In addition, nonrealizable assets—consisting generally of good will—are not adequate basis in themselves for granting a loan to industry.

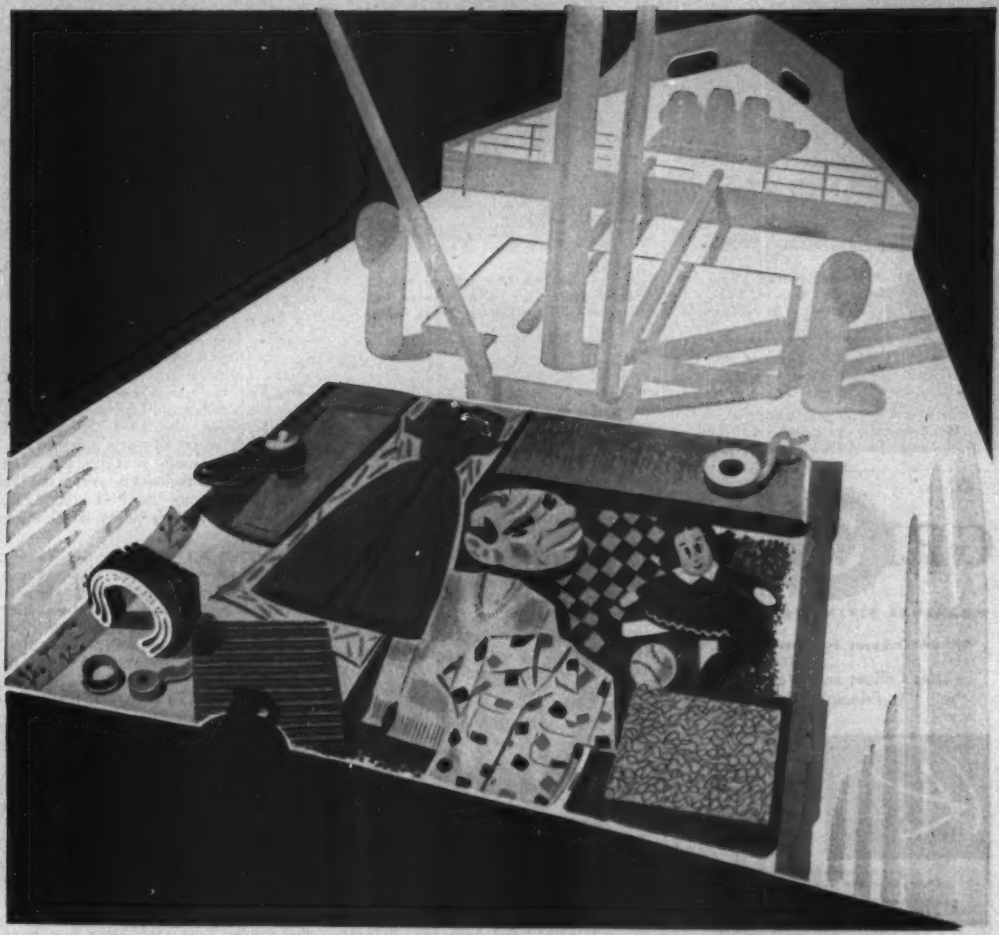
"We are naturally interested in the earning record (operations), and examine the profit and loss statements for a period of years," Mr. Rumpf declared. "If the record of an individual company runs counter to the industry trend, a red flag appears. . . . Other factors under this heading include plant efficiency, banking performance and trade record, overhead expense, organization morale, and labor relations."

High on the list of considerations to be made by the prospective lender, he said, is the degree of essentiality of the product and the competitive position of the company (prospects). "A projection of operations, intelligently conceived, is a valuable tool to the credit analyst. Here we must also examine the capital expenditures or plant expansion contemplated and be assured of the financial ability to conduct this expansion. The further development of the product and the potential expansion of sales at a profit are, while intangible, essential to the study."

Speaking of the stability of the paper industry as a basis of the loan banker's viewpoint, Mr. Rumpf declared that last year printing and publishing consumed an estimated ten million tons of paper (including imported newsprint). An additional 13,500,000 tons were used in packaging, while 1,500,000 tons were consumed in those papers dealing with sanitary functions. And almost 4,000,000 tons were utilized in building, mechanical, and other paper classifications.

"The paper industry will be producing almost 7 billion dollars worth of goods this year," Mr. Rumpf contained. Employment is running currently at 209,000 workers, exclusive of salaried individuals and those employed in the woods with the present annual payroll approximating $765 million. He pointed out that probably one million people with an annual payroll of close to three and one-half billion dollars are directly dependent on the industry.

As far as total assets are concerned, he said, reliable sources indicated an industry figure of close to 5 billion dollars at the end of 1949. "In all probability," Mr. Rumpf declared, "new capital and retained earnings invested in property has increased this figure to close to 5¼ billion at the present time. This is a substantial increase over the 2.97 billion at the end of World War II." According to the speaker, the increase is due in part to the deferred maintenance, modernization, and im-



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Left to right: A. Newell Rumpf, Harris Trust Co.; F. J. Trucano, Morris Paper Mill; V. V. Vallandigham, Kelco Co.; Geo. A. Zinkil, Central Fibre Products Co.; M. G. Kuhlman, Fleming & Sons, Inc., Dallas, Texas; J. R. Fulghum, Socony Vacuum Oil Co.; C. Krebs, Atlas Bagmakers, Inc.

provement accumulated during the war years and the bunching up of plant and equipment requirements.

The growth in production since 1945 has been equally as rapid, Mr. Rumpf pointed out. In 1945 a total of 17,400,000 tons was produced, 22,100,000 in 1948, 20,300,000 in 1949, and a record 24,300,000 tons last year. "According to primary estimates," he declared, "total production for the first six months of 1951 was 13,700,000 tons. . . . It is thus easy to see that it will be possible for the industry to produce over 27 million tons in 1951, provided raw materials are adequate."

"Capital requirements for entering into the industry are very large," the speaker said. "Pulp mills run in the neighborhood of $70,000 per ton capacity, and a 200- to 300-ton mill is required in most instances for economic operation. The proposed National Container Co. plant in the South is expected to run around $23 million for a 500-ton kraft mill. You certainly can't go into this business with pennies."

Speaking of the investment required in the paper industry, Mr. Rumpf declared that the large capital outlays plus substantial lease obligations for the fully integrated operator with access to timberlands are the principal fixed costs involved. He added that the industry has the largest investment cost per worker of any industry in the country. Profits vary considerably with the rate at which wood mills are operating. It has been estimated that fully integrated mills must operate at at least 80 per cent of capacity for profitable results. Non-integrated firms can probably operate at lower levels due to some freedom from leasehold costs.

Discussing consumer demand in the paper industry, Mr. Rumpf noted that on a basis of orders received since mid-1949 it can be established that production has not been sufficient to meet consumption; and, therefore, it appears that paper production in general can justifiably be maintained at high levels. However, in view of the fact that production has exceeded basic demand for the most part since mid-1949, it would seem significant that an ultimate adjustment is in the offing. Therefore, the conclusion must be that paper production should continue at high levels over the short term, but that, unless a significant change takes place, the basic demand in the form of an upward spurt of paper production might have to level off within the next year or so.

In commenting on cost-price relationships in the industry, Mr. Rumpf said that the squeeze which results during a period when prices are controlled provides greater stability to paper selling prices than to related wages and material costs. "This tends to be offset during such periods," he said, "by reasonably high production activity, and consequently fixed costs are not overly burdensome. This presents a problem for the industry in that costs appear to rise more rapidly than selling prices.

"There appear to be few, if any, definite trends in profit margins for paper industry operators. The margins of the major companies for the most part have fluctuated somewhat in line with sales volume." Low sales volume in 1938, 1945, and 1949, Mr. Rumpf explained, were all accompanied by lower than average margins for most companies. Peak margin years, on the other hand, were in 1941 and 1948, both years of high paper production and sales.

"The rate of return (after taxes) on stockholder investment in paper and allied product firms," the speaker noted, "compares favorably with other industries. A study made by the Federal Trade Commission reveals that 103 corporations showed 9.6 per cent in 1940, 21.1 per cent in 1947, 18.2 per cent in 1948, 12.1 per cent in 1949, and 16.1 per cent in 1950. Of the 25 industries considered, only industrial chemicals, office and store machines, motor vehicles, motor vehicle equipment, and electrical machinery and equipment showed a better rate of return than the paper industry. It appears that the industry and its stockholders are in good company."

In conclusion, Mr. Rumpf recalled one element of profit usually forgotten by industry and consumer alike. "It is well known," he said, "that you have to sell your product for more than it costs you or you go 'busted.' That difference goes by the nasty name of 'profit.' If the product you sell isn't worth a lot more to the customer than what he paid for it you will go broke too. The amount more that the article is worth to the customer than what he paid for it is the customer's profit. And the customer's profit is industry's profit."

COLUMBIA RIVER IMPROVEMENTS

The Columbia River Paper mill has announced plans for construction of a new $45,000 fuel storage bin and construction of a new 100,000-gallon water tank for greater fire protection.

DANISH PAPERS CEASE

Three more Danish provincial newspapers have announced they would cease publication because of increased newsprint prices. This made a total of fifteen Danish newspapers that have suspended operation since July 1.

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PAPER TRADE JOURNAL

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NOVEMBER 30th, 1951

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SUPPLIERS

HOOKER ELECTROCHEMICAL CO. has appointed Thomas E. Moffitt to the position of works manager of the Tacoma, Wash., plant. Mr. Moffitt succeeds John D. Rue, former works manager, who has retired under the company's pension plan. Other promotions announced at the Tacoma plant are George Gentes to plant engineer, succeeding Howard D. Norris, retired. Edwin A. Adams has been named purchasing agent. Chester D. Roberts becomes traffic manager succeeding Carl A. Stewart, retired. Russell Hansen is master mechanic succeeding Andrew K. Hansen, retired.

WORTHINGTON PUMP AND MACHINERY CORP. has named the following seven plant executives to new posts:

George P. Passmore, assistant to the vice-president in charge of manufacturing at Harrison, N. J. Mr. Passmore has been serving as works manager of Worthington's Wellsville, N. Y., plant since 1941.

A. M. Tullo, works manager of the company's Wellsville, N. Y., plant. Since 1945 Mr. Tullo has been assistant works manager at the Harrison plant.

John Burlick, assistant to the works manager at the Harrison plant, in charge of industrial engineering activities. Since 1945 Mr. Burlick has been manager of the Methods and Standard Department.

Max A. Heyman, assistant to the works manager at the Harrison plant in charge of production control activities. He has been manager of the Production Department at Harrison since 1945.

W. D. Sizer, manager of Regional Engineering and Service Department, with headquarters at Harrison. Since 1940 Mr. Sizer has been executive engineer for the Harrison plant.

George F. Habach, executive engineer at the Harrison plant. Since 1945, Mr. Habach has been chief engineer of the Centrifugal Engineering Division.

Everett Schmachtenberg, chief engineer of the Centrifugal Engineering Division at the Harrison plant. Mr. Schmachtenberg has been assistant chief engineer of this division.

GENERAL ELECTRIC CO. has formed six new operating divisions. They include the Turbine Division and the Motor and Generator Division, both with headquarters at Schenectady, N. Y.; Transformer and Allied Products Division, with headquarters at Pittsfield, Mass.; Measurements and Industrial Products Division, with headquarters at Lynn, Mass.; Switchgear and Control Division, with headquarters at Philadelphia, Pa.; and the Component Products Division, with headquarters at Fort Wayne, Ind.

10
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are simple
One moving part. No valves, no pistons, no sliding vanes, no internal lubrication. This makes possible important operating advantages no other type pump offers.
Plus—
NASH ENGINEERING COMPANY,
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Together with recently-announced Defense Products Division, the six new divisions include the majority of the departments which constituted the former Large Apparatus Division and Small Apparatus Division.

Glenn B. Warren, Schenectady, has been appointed general manager of the Turbine Division.

James M. Crawford, of Pittsfield and formerly of Schenectady, was named general manager of the Motor and Generator Division.

Francis E. Fairman, Jr., of Schenectady and formerly of Pittsfield, is now general manager of the Transformer and Allied Products Division. The division includes the Transformer and Allied Products Department and the Locke Department.

George E. Burens, of Baltimore, is general manager of the Switchgear and Control Division. This division includes the Control Department and the Switchgear Department.

Harold E. Strang, of Lynn and formerly of Scotia, N. Y., is general manager of the Measurements and Industrial Products Division, which includes the Meter and Instrument Department, Lighting and Rectifier Department, Industrial Heating Department, Welding Department, and Lynn River Works Service Department.

William C. Wichman, of Fort Wayne, is general manager of the Component Products Division, including the Fractional Horsepower Motor Department, Specialty Transformer and Ballast Department, and Fort Wayne Works Service Department.

J. D. Haskell

BLACK-CLAWSON CO., Hamilton, Ohio, have promoted John D. Haskell to the position of executive vice-president. In this capacity Mr. Haskell will direct the activities of all divisions and subsidiaries including the world wide export organization and B-C International, Ltd., with headquarters in London, England.

Mr. Haskell's career in the paper industry and allied trades began in 1919 at which time he was employed by the Management Engineering & Development Co., a division of the Mead Corp. At that time he was engaged in the engineering development of pulp and paper mills and his assignments included the No. 5 and No. 6 machine developments at the old Spanish River mill, Espanola, Ontario, Canada, mill expansion at the Colin Gardner (Gardner Board & Carton Co.) plant at Middletown, Ohio, the Escanaba, Michigan Mead mills and the Ft. William Pulp & Paper Co. (Minnesota & Ontario).

In 1921, Mr. Haskell assumed engineering responsibilities with the Dilts Machine Works, Inc. Under his direction the Hydrafiner was developed in 1933, to be followed by the Classifiner in 1935. In 1939 the development of the Hydrapulper culminated the pioneering phases of a completely new line of stock preparation equipment and opened the vistas of the subsequent stock preparatory system and centralized remote control era. In 1936, Mr. Haskell was promoted to vice-president and general manager of the Dilts Machine Works, Inc., and is credited with the establishment of the first research and development laboratories and technical service organization in the pulp and paper mill industry. In 1940 the Dilts Machine Works merged with the Black-Clawson Co. of Hamilton, Ohio, and Mr. Haskell was elected a vice-president of the parent company, while being retained general manager of the Dilts division.

During the later phases of World War II, Mr. Haskell instigated the development of the export department of The Black-Clawson Co. and subsequently organized B-C International, Ltd., a wholly owned subsidiary of The Black-Clawson Co., of which Mr. Haskell is also managing director.

He will continue to make his headquarters at the Dilts division in Fulton, N. Y.

PACKAGE MACHINERY CO. reports that George A. Mohlman, chairman of the board of directors, retired from active service on October 1. He first became associated with the company in December 1918, when he joined the New York sales force. He will remain as a member of the board — largely an honorary position — and find other things to keep him busy. He might become a consultant to the packaging industry at large, he declared.

RAWLPLUG CO. INC. has elected Frederic B. Powers, president.

Mr. Powers succeeds the late Winthrop R. Howard, founder and president of The Rawlplug Co. since its inception in 1921.

Mr. Powers came to the Rawlplug Co. as a salesman in 1934. After several years he became assistant sales manager and then was made sales manager. In 1945 he was elected to the Board of Directors and held the offices of vice-president and secretary.

F. B. Powers

The Controlled Flow

VICTORY BEATER

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THE NOBLE & WOOD MACHINE CO.

Paper Mill Machinery

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ASTEN-HILL MFG. CO., Philadelphia, Pa.

ASTEN-HILL LTD., Valleyfield, Quebec

Frank Clawson

DRAPER BROTHERS CO., Canton, Mass. have appointed Frank Clawson sales representative of Draper felt. He will cover midwest mills with L. H. Breyfogle and L. L. Griffiths, Jr.

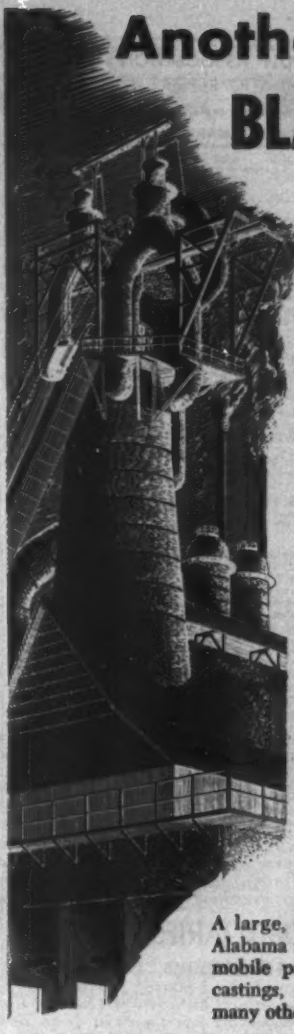
He was recently employed by the Sutherland Paper Co., Kalamazoo, Mich. His headquarters will be at 809 Lakeview Drive, Kalamazoo, Mich., where he now resides.

TIMKEN ROLLER BEARING CO. has appointed George T. Humphrey, Jr., to assistant general manager of the Service Sales Division. Mr. Humphrey, formerly assistant branch manager of the Service Sales Division of Dallas, Texas, was instrumental in developing Timken company distribution centers in Mexico, and in promoting Timken Rock Bit sales in that country. Mr. Humphrey joined the Timken Roller Bearing Co. in 1939. He will assume his new duties at the Canton office on November 1.

BRITISH-AMERICAN CARBON CORP., New York, N. Y., have appointed Daniel W. Kallman and John T. O'Rourke sales engineers of the Eastern division for Delanium carbon cubic heat exchangers. Both men will work out of the New York headquarters office, 18 East 48th street.

SOLVAY SALES DIV., Allied Chemical & Dye Corp. has appointed Neal M. Draper, formerly manager of Solvay's St. Louis branch, to the New York executive offices as manager of the Ammonium and Potassium Products Department. Harry R. Stoothoff, who has been assistant manager of the Chicago branch office, becomes manager of the Special Alkalies & Cleansers Department. Verne W. Aubel, Jr. is advanced from supervisor to manager of the Calcium Chloride Department. E. J. Seener succeeds Mr. Draper as branch manager of the St. Louis branch office, where he has been assistant manager for the past four years. A. Benjamin Kennedy is the new branch manager of Solvay's Detroit office, succeeding Arthur Phillipps, Jr. who will fill the newly created post of assistant to Solvay's director of sales.

All changes are to take effect immediately.



Another Merchant BLAST FURNACE

Will Soon Light Birmingham's Night Skies

Woodward Iron Company—one of the nation's biggest independent merchant iron producers—now has in progress the largest capital improvement program in the company's long history. Woodward's record-breaking expansion program includes construction of a new and modern blast furnace. Operation is expected to begin in the Fall of 1951.

Announcing the company's new construction program, President B. C. Colcord said:

"Prior to 1900, the bulk of merchant iron produced in Alabama was sold north of the Ohio River. Today over 95% is consumed by Southern foundries. We need additional capacity at our plant because of Alabama's rapidly accelerating industrial development.

"In the next year or two we are confident that many more plants using grey iron castings will come to Alabama."

A large, ready, nearby market now exists in Alabama for such finished iron products as automobile parts, bathtubs, boilers, pillow blocks, castings, stoves, electric equipment, gears and many others.

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AMERICAN PAPER AND PULP ASSOCIATION'S PAPER PRODUCTION RATIO REPORT

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	Sept. 1	Sept. 8	Sept. 15	Sept. 22	Sept. 29
1951	95.3	78.7	99.9	99.5r	100.6
	Sept. 2	**Sept. 9**	**Sept. 16**	**Sept. 23**	**Sept. 30**
1950	99.2	80.0	103.2	100.3	100.6

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1950	92.6	95.6	96.7	95.4	96.4	97.7	83.3	99.6	96.1	101.0	99.6	91.2	95.8
1951	99.3	101.3	101.9	102.8	102.5‡	100.2‡	89.4‡	98.9‡	94.5‡				

‡ Preliminary.
r Revised.

COMPARATIVE YEARLY SUMMARIES

	1944	1945	1946	1947	1948	1949	1950	1951
Year to Date	88.0	88.4	100.6	103.7	96.9	86.3	95.2	99.6
Year Average	88.1	89.4	101.1	104.1	96.2	88.6	95.8	

PAPERBOARD OPERATING RATIOS†

	Sept. 1	Sept. 8	Sept. 15	Sept. 22	Sept. 29
1951	93	71	94	90	90
	Sept. 2	**Sept. 9**	**Sept. 16**	**Sept. 23**	**Sept. 30**
1950	100	81	100	101	103

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1950	88	92	91	92	91	94	82	100	96	102	101	93	94
1951	102	105	104	103	104	103	84	94	86				

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

Note: The chart shows the ratio through December 1950 on the basis of 6-day capacity. Beginning with January 1950 the ratio is shown on the new basis of normal 6- and 7-day capacities by the colored line. Paperboard operating ratios continue on the basis of a 6-day week.

† Per cents of operation based on "inch-hours" reported to the National Paperboard Association.

WORTHINGTON PUMP AND MACHINERY CORP., Harrison, N. J., has appointed Charles Ebem Wilson, sales vice president, a West Coast consultant on sales problems. In 1946 Mr. Wilson, in addition to his other duties, was made president of the Worthington-Gamon Meter Corp., then a Worthington subsidiary. Mr. Wilson retired from his present position and activities in corporation affairs October 1st, but will continue in a consulting capacity on sales problems at Worthington's offices in Los Angeles, San Francisco, Seattle, Salt Lake City.

OBITUARIES

Albert Leitstein, 45, general manager of the Featured Fabric Finishes Department of Warwick Chemical Co., Division of Sun Chemical Corp., died of a heart attack on September 28.

John C. Allen, 63, vice-president of the J. W. Butler Paper Co. and an employe of the company for more than 30 years, died September 28.

Charles E. Demaree, 59, founder and president of the Eastern Specialties Co., died September 29 at Holyoke, Mass. Mr. Demaree had been associated with the firm which he organized since 1920. The concern manufactures rolled paper specialties.

Percy Hall Jennings, 69, of Cold Spring Harbor, L. I., N. Y., a director of the International Paper Co., died October 2 in Presbyterian Hospital after a long illness. For many years he was president of the American Trading Co.

George W. Shannon, 80, dean of salesmen and formerly a director and a vice-president of Robert Gair Co., Inc., New York, died September 25.

Mr. Shannon started with Gair company as a salesman in 1903, and for almost half a century handled some of its largest national accounts. He was active until two weeks before his death. Mr. Shannon was born in Brooklyn and as a young man was a bicyclist of some renown, winning many 100-mile races as a member of cycling clubs in Brooklyn.

Joseph H. Miller, 57, died at Stevens Point, Wis., September 12th.

Mr. Miller joined Whiting-Plover Paper July 10, 1910, as a stenographer at the age of sixteen. He rose through the ranks of this firm until he became purchasing agent and production manager, and then vice-president and general manager.

In 1942 he suffered a heart attack which was the beginning of a long illness which subsequently caused his death. He continued work after a number of months of convalescence until July 1, 1948, when he retired from the mill.

Mr. Miller served on several committees of the National Assn. of Manufacturers and as a national councilor of the United States Chamber of Commerce. He was a charter member of the Cost Assn. of the Pulp and Paper Industry and a member of the Technical Assn. of the Pulp and Paper Industry. At the time of his death he was president and treasurer of the Emmons Stationery and Office Supply Co., Stevens Point, Wausau and Wisconsin Rapids.

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UNIFORM SUPERIOR DEPENDABLE

English China Clays Sales Corporation
551 Fifth Avenue, New York City

CLEARING HOUSE

HELP WANTED

MEN WANTED
POSITIONS OPEN

We can place—plant supt. for folding box mfg. plant; supt. board mill; gen. mgr. to take full charge of mfg. and sales for new paper converting plant; asst. supt. Fourdrinier fine paper mill; accountant and office mgr. to assist treas.; asst. supt. Cylinder board mill.

Mechanical, electrical and process engineers; master mechanics; colorists and chemical engineers; designer for machine tools; safety engineer; boss finisher (midwest); industrial engineers; salesmen for industrial products for New York City; salesmen for New England (commission and ½ expenses); beater engineers; back tenders and machine tenders.

LIST YOUR CONFIDENTIAL APPLICATION WITH US to keep informed of attractive positions open in the pulp and paper mills.

CHARLES P. RAYMOND SERVICES, Inc.
264 Washington St., Boston 8, Mass.

SPECIALISTS IN PLACING PULP AND PAPER MILL EXECUTIVES O-12

RESEARCH DIRECTOR

Career opportunity for chemical engineer or chemist to establish and head up research department responsible for product improvement, also new product development, also process development of three paper mills producing kraft and sulphite converted products. Box 51-488 care Paper Trade Journal.

O-19

WANTED

A man experienced and fully capable for small, growing Bag Department in Eastern paper mill. Should be experienced in adjusting and production on new Potdevin Notion Bag Machines. A fine opportunity for growth and advancement for the right man. Location is ideal for living and education. Address replies Box 51-491, c/o Paper Trade Journal O-19

WORKING SUPERINTENDENT:—Take charge Converting Dept.—Must be thoroughly experienced maintenance and production napkin folders, roll tissue and towel perforators, towel and toilet interfolders, sheet tissue equipment. References required. Good starting salary, excellent future growing concern. Locate New England. Reply Box 51-506, care Paper Trade Journal. O-19

WORKING SUPERINTENDENT for small fast growing Eastern mill making lightweight specialties. Cylinder machine experience essential. State qualifications and salary expected. Address Box 51-87 care Paper Trade Journal. TF

HELP WANTED

SALARIED POSITIONS $3,500 to $35,000. We offer the original personal employment service (established 41 years). Procedure of highest ethical standards is individualized to your personal requirements. Identity covered; present position protected. Ask for particulars. R. W. BIXBY, INC. —117 Dun Bldg., Buffalo, 2, N. Y. TF

WANTED—Master Mechanic or Assistant for modern 3-Machine Tissue Mill. Progressive management; expansion program now under way. Fine opportunity for young/middle aged man to advance. Substantial paper mill mechanical experience with electrical background desirable. Give complete resume of experience in letter to Box 51-442 care Paper Trade Journal. Replies held strictly confidential. TF

WANTED

MECHANICAL ENGINEER for three-machine pulp and paper mill. Fine opportunity for young, aggressive and experienced engineer who can handle Maintenance and his department efficiently. Ideal living conditions for family and education. Address Box 51-492, c/o Paper Trade Journal. O-19

Wanted: Man with experience to carry out effective, intensive, continuous safety program for the Johnsonburg, Pennsylvania Mill (1300 employees) of the New York and Pennsylvania Co., Inc. Prefer person who has had experience as Safety Assistant in larger company with good safety record or as director of effective program in smaller company. O-26

Experienced Chemist to head Development—Diversification Program for old established Midwest converter. Requires thorough knowledge of films, converting papers, waxes, and other coatings and their combination for packaging materials. Sales development experience an asset. Excellent salary. Please furnish resume of experience and qualifications. Address Box 51-521 care Paper Trade Journal. O-12

OPERATOR

for modern, high speed slitter and rewinder. Must be thoroughly experienced. Experience with Kidder or Meisel particularly helpful but not necessary. Plant located Metropolitan New York. Replies kept strictly confidential. Reply Box 51-515 care Paper Trade Journal. O-12

SUPERINTENDENT for Maintenance and Modernization; Machine Tender; Back Tenders; for Fine Paper Mill Eastern New York. Address Box 51-501 care Paper Trade Journal. O-26

EASTERN CONVERTER wants oil-ink Press man acquainted paper napkin manufacture. Reply in confidence to Box 51-511 care Paper Trade Journal. N-2

HELP WANTED

WANTED — Machine Tenders and Back Tenders for corrugating medium and liner mill, Fourdinier and cylinder machines. Located in Western Pennsylvania; good working conditions; pleasant surroundings and very good labor relations. Call collect—Tarentum 1470, TARENTUM PRODUCTS CORPORATION, Tarentum, Pa. TF

WANTED — SALES ENGINEER — Experienced in Pulp and Paper Mills, for sales and service work in the South. Excellent opportunity with old established machinery manufacturer. In reply give resume of education, experience and current salary. Address Box 51-482 care Paper Trade Journal. O-12

WANTED—A Working Master Mechanic with paper mill experience, by a one machine Ohio Paper Board Mill. Give complete resume of experience and salary expected. All replies confidential. Our employees know of this advertisement. Address Box 51-522 care Paper Trade Journal. N-2

MASTER MECHANIC or Maintenance Superintendent having at least 10 years practical paper mill experience and preferable technical engineering training. Good opportunity for aggressive man. Address Box 51-517 care Paper Trade Journal. O-12

PAPER MILL SUPERINTENDENT for light weight specialty hydrated papers. Practical experience important, technical education preferable. Must have mechanical knowledge of paper making experience. Address Box 51-518 care Paper Trade Journal. O-12

SALES ENGINEER—Engineer with pulp mill experience wanted by well established machinery firm. Opportunity for advancement. Address Box 51-516 care Paper Trade Journal. TF

SITUATIONS WANTED

PLANT MANAGER—Paper and Board and their conversion; wants challenging opportunity. Highly successful in organization; administration; labor relations and high level production. Presently employed. Address Box 51-465 care Paper Trade Journal. O-26

CHEMICAL ENGINEER—30 years technical and management experience, paper coating, coated abrasives, coating and converting machinery, resins and specialties. Desire technical or production position with established company. Address Box 51-471 care Paper Trade Journal. O-12

SUPERINTENDENT — Thoroughly experienced papermaker desires to make new connections. Conventional or Yankee Fourdriniers, light and heavyweight specialties. References. Address Box 51-487 care Paper Trade Journal. O-19

PERSONNEL DIRECTOR—Fifteen years experience Pulp and Paper industry, supervising functions of industrial relations department. Experience includes labor negotiations and contract procedures. Address Box 51-509 care Paper Trade Journal. O-19

MANAGER OR SUPERINTENDENT desires change. Fifteen years practical experience and five years supervisory capacity. Experienced on Yankee Fourdrinier machines making facial, napkins, toilet tissue and towels. Extensive experience in de-inking and purchase of waste paper. Address Box 51-514 care Paper Trade Journal. O-19

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HELP WANTED—10c a word. Double rate for heavy face type. Minimum charge $3.50.

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SITUATIONS WANTED

BEATER ENGINEER—A very high grade man with a wealth of experience seeks a difficult assignment. Many years with one of America's foremost mills. Expert on colors and knows paper making thoroughly. Address Box 51-525 care Paper Trade Journal. O-26

INDUSTRIAL AND CHEMICAL ENGINEER seeks connection with progressive concern considering expansion, research, design or operation. Here or abroad. Sulphate semi-chemical pulps, fine papers, kraft test boards. Just completed two successful plants. Resume of experience and highest references on request. Address Box 51-524 care Paper Trade Journal. O-19

COLLEGE FORESTRY GRADUATE with 1½ years experience as quality control chemist desires employment in wood department of progressive paper company. Interested in company which can offer advancements as ability is proven. For additional information write Box 51-520 care Paper Trade Journal. O-26

SALES ENGINEER—A "self-starter" and likes to work. Willing to assume responsibility. Now employed in the paper industry. Desires a new connection—willing to relocate. Address Box 51-513 care Paper Trade Journal. O-12

FOR SALE

FOR SALE
HYDRAPULPER

1—Shartle Brothers 10' Batch Hydrapulper with hydraulic dump valve and skip hoist. Complete, including drive—less motor. New 1947.

ROSS PAPER MACHINERY COMPANY
265 Passaic Street Newark, 4, N. J.
Tel. HUmboldt 2-2177 O-12

FOR SALE
SUCTION COUCH ROLLS

2—Millspaugh 30" diameter x 234" drilled face, with enclosed drive, water cooled bearings, 12" suction boxes and 1 spare shell.
1—Beloit 25" diameter x 104½" drilled face—anti friction bearing.

ROSS PAPER MACHINERY COMPANY
265 Passaic Street Newark, 4, N. J.
Tel. HUmboldt 2-2177 O-12

FOR SALE—One 6" Brightwood machine, complete with collapser. Many extra parts, complete range all size forms, serial number 1074. ALLEN CARTONS, INC., Dayton, Ohio. O-12

FOR SALE

FOR SALE

20 New Anti-friction Bearing Felt Stretches. Brass screws 1¼" dia. complete with hand wheels and ratchet 12 Sets Spring Roll Brackets with 1-7/16" and 1-15/16" bearings.

Osborne Paper Mill Equipment Corp.
FULTON, N. Y. New Tel. #3-4284 O-26

FOR SALE

1—Complete Rotating Frame Drive Synchronous tie draw control, consisting of nine sections suitable for driving Fourdrinier Paper Machine up to 179" in width, maximum speed 600 FMP, Minimum 100 FMP, complete with all controls and necessary M.G. sets. Address Box 51-486 care Paper Trade Journal. O-12

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265 PASSAIC STREET
NEWARK 4, N. J.

CONVERTING — NEW AND USED MACHINERY
PAPER MAKING MACHINERY — PAPER AND PAPER CONVERTING MACHINERY

MACHINERY WANTED FOR OUTRIGHT PURCHASE

Paper Machines, Pulp and Paper Mill Machinery and Converting Equipment.

BEATERS
1—Dilts 750 lb. Iron Tub. Roll 44" face x 50" diameter.
1—Downingtown 1000 lb. Iron Tub. New roll 48" face x 48" diameter.

BELTING—NEW
67 feet 8" 13 ply Goodyear Rubber Belting.
100 feet 6" 4 ply Silver Duck Transmission belt.

CALENDER ROLLS
46 Chilled Iron Rolls—Assorted sizes.

CALENDER STACKS
1—6 roll—62".
1—6 roll—62". All rolls bored for steam.
1—Lobdell 6 roll 124" Calender Stack, with doctors and drives.
1—Farrel Birmingham 110" Calender Stack with 2 rolls bored for steam.

COMBINING MACHINE
1—Black Clawson 54" Combining Machine with 4—60" diameter and 1—54" diameter Dryers. Motor, pumps, tanks, etc. Complete.

CONVEYOR
1—194 ft. long x 30" wide—with motor.

CYLINDER MOLDS
1—134" face x 36" diameter, with stainless steel shafts.

DAMPENER
1—Valley Micromist Unit for water finish on paper—120" deckle.

DRYERS
2—124" face x 48" diameter.
1—77" face x 48" diameter—with gear.
1—120" face x 10" diameter—Baby Dryer.
1—84" face x 36" diameter.
1—60" face x 48" diameter, with bearings.
5—110" face x 42" diameter with bearings and gears.
1—100" face x 42" diameter Creping Dryer.
4—42" face x 36" diameter, with frames, gears and bearings.
10—60" face x 48" diameter, with gears, bearings and steam joints.
21—120" face x 42" diameter.
3—110" face x 48" diameter.
2—104" face x 48" diameter.
1—100" face x 36" diameter.
2—110" face x 36" diameter, with gears and bearings.

EXTRACTOR ROLLS
1—Downingtown Extractor Roll 138" face x 24" diameter. Anti friction bearings.

FILTERS
1—Oliver Vacuum Filter, Cylinder 9' face x 5' 6" diameter. Iron and wet.

FLAT SCREENS
3—2 plate Sandy Hill Roller Shoe with scrapers.
6—Harmon 12 plate.
1—Sandy Hill 12 plate roller shoe.
3—Bagley & Sewall 8 plate, with scrapers and plates.
10—Sandy Hill 12 plate roller shoes.

HYDRAPULPER
1—Shartle Brothers 10' Batch Hydrapulper with hydraulic dump valve and skip hoist. Complete, including drive—less motor. New 1947.

HYDRAULIC PRESS
1—Thorpe 200 ton. Steam platens, 40"x40" with pump.

JORDANS
1—36 Miami, for motor drive.
2—Jones, Majestics with base and couplings—
1—23 Appleton with base and coupling.
1—Jones Majestic, Stainless Steel Fitting.
3—E. D. Jones Pony, 3/16" stainless steel fittings—bronzed plugs.
1—Smith & Winchester Stainless with granite fittings.

MOTORS
1—Allis Chalmers 50 h.p. 440 v. 690 r.p.m.
1—Westinghouse 100 h.p. slip ring, 440 v. 3 ph., 60 cyc. 600 r.p.m.
1—Crocker Wheeler 100 h.p. slip ring, 440 v., 3 ph., 60 cyc. 710 r.p.m.
1—General Electric 100 h.p. 440 v., 3 ph., 60 cyc., 575 r.p.m.
1—Western Electric 100 h.p. 440 v., 3 ph., 60 cyc., 600 r.p.m.
25 others 440 v. motors from 2 h.p. to 15 h.p.

PULP EQUIPMENT
1—Mitts & Merrill #17 Pulpwood chipper.
1—Bird ball bearing Pulp Screen. Practically new. Used 6 months.
6—APMEW Ball Bearing Pulp Screens—30 ton capacity.

PULPERS
2—22 Lamneyo.

PUMPS
44—Centrifugal Pumps, open 4, closed impellers, Direct connected or Belt Driven. Extended base for motor. Assorted capacities and heads. Most used less than one year. Also new Gaulds Pumps.

REDUCERS
1—Link Belt 40 h.p. Ratio 2.2-1, 880 r.p.m.-227 r.p.m.

REFINER
2—Claflin 21—anti friction bearings—for belt drive.

ROLLS—PRESS COUCH, etc.
52—Press rolls, brass and rubber covered.
14—Couch rolls, brass and rubber covered.
250—Brass and steel carrying rolls.

ROTARY SCREENS
3—22A Bird Rotaries. Copper vats.

SCREW PRESSES
3—Valley Voith Screw Press Size 2.
1—Valley Voith Screw Press—enclosed drive.

SHEETERS
1—Hamblet 124" Duplex Sheeter with maximum layboy—8 roll backstand—motor and starter.
1—Moore & White Simplex 114" Sheeter with slitters—counter, Manzo layboy overhead delivery, 8 roll backstand, motor and starter.
1—48" Kidder Quad Sheeter.
1—64" Duplex Dilts with 15 roll Back stand.
1—Moore & White 81" with Erie Layboy and 10 roll backstand, with motor.

SHREDDERS
1—American 32" Hammermill, anti-friction bearings.
1—Jeffrey 20½" Kolmes—7 knife rotor—8 knife bed plate. Ball bearing.

SLITTERS AND WINDERS
1—Beloit 120" Paper Machine Slitter and Rewinder—42" rewind.
1—Winkler Sharp 25W—60" Wax roll slitter and rewinder.
1—Langston 40" shear cut with motor and 20 sets of slitters.
7—Cameron 42" Model 0—36" rewind.
2—Miscl 42".

STEAM TURBINES
1—De Laval 225 h.p. Initial pressure 140 p.s.i. Exhaust pressure 35 p.s.i. Complete with gear reducer.
1—De Laval Variable speed—375 h.p. at 135 pounds and 30 p.s.i. exhaust. Complete with gear reducer.

STOCK PUMPS
1—Shartle 10 x 20 Single Plunger Pump.
2—Beloit 8x10 Triplex.

SUCTION COUCH ROLLS
2—Millspaugh 30" diameter x 234" drilled face with enclosed drive, water cooled bearings, 12" suction boxes and 1 spare shell.
1—Beloit 25" diameter x 104½" drilled face—anti friction bearings.

SUCTION PRESS ROLLS
1—Sandusky 92" drilled face x 14" diameter.

SUPERCALENDERS
1—Norwood 74" 9 roll with unwind and rewind. Complete with drive and 2 spare rolls.
1—Norwood 64" 10 roll with unwind and rewind. Complete with drive and 2 spare rolls.
1—Norwood 59" 9 roll with unwind and rewind. Complete with drive and 2 spare rolls.

THICKENER
1—Wood, Thickener with anti friction bearing. Cylinder 48" diameter x 132" face.

TOILET TISSUE PERFORATOR
1—Paper Converting Machine Co. Model 141 automatic 81" Perforator, slitter and Winder—with three motors—ball bearing.

VACUUM PUMPS
4—Nash H-5 Vacuum Pumps
1—Nash 24.
1—Nash 22.
1—Nash 23.

WAXING MACHINES
1—36" Potdevin complete from let off to single roll rewind section.
1—36" Special—complete from 2 roll let off to single roll rewind.

WET MACHINES
1—Appleton 74" face x 36" diameter cylinder.
1—Appleton 74" face x 36" diameter cylinder.

WRAPPING MACHINE
1—Marrow Stevens type 10. Package thickness ¾" to 5". Used 30 days.

WHY LIST YOUR EQUIPMENT? — WE WILL BUY IT.

FOR SALE

Cameron Slitters

1—32" Type 8-S
1—62" Type 40-1AF.
1—42" Type 6.
1—32" and 1—42" Type 40-2A.
1—42" Type 40-1-AF.

OTHER SLITTERS

1—60" Hammersly Score Cut.
1—30" & 1—40" Langston Type A Shear Cut S & R.
1—42" Langston Center Wind Duplex Shear Cut Slitter and Rewinder.
1—32" Hobbs Shear Cut, double rewind slitter and rewinder.

POWER PAPER CUTTERS

8—Seybold, 44" & 54" 20th Century, 40" 62, 34", 44", 48" & 54" Holyoke, 50" Dayton. 2—Oswegos, 38" & 44", 3—Sheridan, 36", 40" & 50". 1—Dexter, 50". 3—Acme, 32", 36" & 46". 1—S&W Undercut 63".

MISCELLANEOUS MACHINES

1—72" Hudson-Sharp 25W Winder for Waxed and Household paper rolls.
1—36" Beck Rotary Sheet Cutter with Jogger Table Delivery.
3—Schultz Automatic Roll Machines. Take paper 12" to 24" wide. Roll lengths 12' to 150'.
1—40" Creping Machine. Has three 5' diameter dryers, complete unit.
1—44" Creping machine, complete with automatic Kohler system.
Several Die Presses, Seybold and Sheridan, various sizes.
1—20" Champlain 4 color Rotogravure Press.
1—New 24"-2 color, Roll to Roll Aniline Press.
1—48" Waldron Intgalio press for printing board in sheets.
1—48" Mayer Equalizer Waxing Machine, Type 40-EV. Two Coating Heads and three 16" diameter Cooling Drums.
1—42" Hammersly Squeese Roll Waxing Machine.
2—Potdevin Waxing Machines, 82" wide.
1—Paper Converting Machine Co.'s Model No. 215, three web, ¼ fold napkin machine with embossing attachment.
3—Brand new 81" Dietz, very latest type, friction rewind combination toilet and towel roll converters. Automatic counters and stop motions.
1—74" Moore & White Double-drum Winder.
1—45" Hamblet Rotary Sheet Cutter with Backstands.
1—64" Dillon Duplex Rotary Sheet Cutter.
1—84" Moore & White Duplex Rotary Sheet Cutter.
1—110" Model 29 Hamblet Duplex Rotary Sheet Cutter, slitting attachment, Erie automatic layboy and twelve roll backstands.
1—74" Hamblet Duplex Rotary Sheet Cutter, slitting attachment, 8 roll backstands, Moore & White layboy.
1—45" Robinson Rotary Card Cutter.
1—68" nine roll Holyoke Super Calender stack with AC motor equipment.
1—40" Holyoke, 6 Roll, Stack of Super Calenders.
1—Stands, "Champion" folding and glueing machine.
1—60" Parry Liner, 11 roll type. New 1949. Never used.
3—Asphalt Laminating Machines, one 70" and one 84".
1—Roto Bag Machine with electric eye, for making cellophane, polyethylene, pliofilm, bags in wide range of sizes.
2—36" x 76" Wet Machines.
2—72 Lannoye Pulpers.
2—3000 ℔ Niagara Iron Tub Beaters.
10—Sandy Hill 12 plate Packer Screens.

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Three Trimby 72" Rotary Knotters, Stainless Steel Plates.
One Oliver Young type 8' x 8' Vacuum filter.
Two Pulp Bleaching 8' x 6' Vacuum filters.
Two Pulp Bleaching 6' x 6' Vacuum filters.
One Impco 8' x 6' Washer Thickener for tile vat with separately driven repulper.

Address Box 51-481 care Paper Trade Journal

O-12

FOR SALE

Two or Three Paper Machines, Cylinder or Fourdrinier, Trim 44", 48" diameter dryers chromium plated. Will rebuild to make any kind of paper and capactiy to meet your needs.

Box 51-505 c/o Paper Trade Journal TF

FOR SALE

1—136" Fourdrinier Paper Machine with dryers 42" dia., 132" face. Can furnish 13 or 33 dryers to suit your needs. Will rebuild machine to make grades you desire.

Osborne Paper Mill Equipment Corp.

FULTON, N. Y. **New Tel. 23-4254**

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Orton 40-ton diesel locomotive cranes.
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828 N. Broadway Milwaukee 2, Wis. O-12

FOR SALE

Used dryers now operating on 40 lbs. steam pressure.

34 dryers—48" x 134"
12 dryers—48" x 118"

Box #51-523 care Paper Trade Journal. N-30

FOR SALE—One type I, form K, 50 HP General Electric motor, 440 V, 3 ph, 60 cycle, 900 rpm. Also, one 50" Langston rewinder. Can make rolls up to diameter 40". Address Box 51-504 care Paper Trade Journal. O-26

FOR SALE—64" Seybold Paper Cutter; 36" and 62" Cameron Slitter/Rewinder; 6" Brightwood; Int'nl. Folding Box Gluer; 30" and 44" Hartford Platen Die Cutter; 72" S & S Rotary Slitter/Creaser; Knowlton Spiral Tube Winder & Recutter like new; Complete Set-up Box Machines. Write for listings and prices. Address Box 51-467 care Paper Trade Journal. TF

PAPER COATING MACHINERY MANUFACTURERS — Waxing, Oiling, Carbon Laboratory Coating and Treating and Flat Resin Measuring and Converting Machines. New improvement. THE MAYER MACHINE COMPANY, INC., 1313 Buffalo Road, Rochester, 11, N. Y. TF

FOR SALE

FOR SALE—52" Cameron type 8 Model S Slitter; 48" Kidder Model CH shear cut slitter; 76" Cameron Rewinder; 72" Moore & White Upright 2 drum Reel; 42" Moore & White Sheeter; 100" Dillon Sheeter. Thomas W. Hall Company, Inc., 120 West 42nd St., New York, 18. TF

FOR SALE—PAPER COATING RODS—Wire wound EQUALIZERS and blank rods. DE NEVE & CONSLER CO., Box 817, Rochester, 3, N. Y. O-5

WANTED

BAG KRAFT WANTED

Converter needs another supplier to take care of normal increase in business which can't be covered by present supplier. Good investment for any mill—will pay dividends. Address Box 51-516 care Paper Trade Journal. O-12

WANTED—W & P Shredders, Evaporators, Generators and Boilers, Slitters, Cutters, Hydraulic presses, Sheridan Presses, Dryers. Address Box 51-89 care Paper Trade Journal. TF

WANTED—Brightwood Box Machine, Shredders, Evaporators, Generators and Boilers, Slitters, Cutters, Hydraulic presses, Sheridan Presses, Dryers. Address Box 51-88 care Paper Trade Journal. TF

HOT WAXER WANTED—Give complete information and price. ALLEN CARTONS, INC., Dayton, Ohio. O-12

WANTED—One Ames center crank steam engine minimum 75 h.p. Also, one Noble and Wood Pony Jordan without filling or plug. STOCKPORT PAPER CORPORATION, Stockport, N. Y. O-12

WANTED—One No. 6 Bird Save-All or equivalent equipment. MUSKINGUM FIBER PRODUCTS CO., Box 419, Coshocton, Ohio. O-19

MACHINERY WANTED — Kidder Press needed for immediate delivery. New or used. 30 to 42". Send replies to Box 51-507 care Paper Trade Journal. O-12

WANTED—Roll Grinder to make 30" diameter rolls, 200" face, with crowning device. Also, Number 7 or L9 Nash Pump. Address Box 51-508 care Paper Trade Journal. O-19

WANTED TO BUY OR LEASE—Fourdrinier or Cylinder mill with one or two machines. Confidential. Address Box 51-526 care Paper Trade Journal. O-26

WANTED—10", 13" and 17" Napkin Printers or Machines. Full details to Box 51-512 care Paper Trade Journal. N-2

WANTED—15 Dryers 70-74" face, 36" diameter. Address Box 51-519 care Paper Trade Journal. N-2

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Moore & White Co.
The Sandy Hill Iron & Brass Works
Valley Iron Works Co.
Shartle Brothers Machine Co.

ALLOYS
Michigan Steel Casting Co.

ANTIFOAM
American Cyanamid Company Industrial Chemicals Division
National Aluminate Corp.
Nopco Chemical Co.

APRON CLOTH
Williams-Gray Co.

BAG MACHINES
Dilts Machine Works
Potdevin Machine Co.
H. G. Weber & Co., Inc.

BALL MILLS
F. L. Smidth & Co.

BARK BURNER
Combustion Engineering-Superheater, Inc.
Hoffi Company, Inc.
Nichols Engrg. & Research Corp.

BARK PRESS
Fibre Making Processes, Inc.

BARKERS AND CHIPPERS
Allis-Chalmers Mfg. Co.
Appleton Machine Co.
Carthage Machine Co.
Fibre Making Processes, Inc.
D. J. Murray Mfg. Co.
Valley Iron Works Co.

BARS
Dilts Machine Works
E. D. Jones & Sons Co.
The Moore & White Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.

BASIC WEIGHT SCALES
Thwing-Albert Instrument Co.

BEARINGS
The Bagley & Sawall Company
Black Clawson Company
E. D. Jones & Sons Co.
Magnus Metal Corp.
The Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
SKF Industries
Stephens-Adamson Mfg. Co.
Timken Roller Bearing Co.
Valley Iron Works Co.

BEATERS AND JORDANS
American Paper Machy. & Engrg. Works, Inc.
The Appleton Machine Co.
Black Clawson Company
Dilts Machine Works
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Morden Machines Co.
J. J. Ross Company
Ross Paper Machy. Co.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

BED PLATES
Bahr Brothers Mfg. Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Farrel-Birmingham Co., Inc.
E. D. Jones & Sons Co.
Lukenweld Div., Lukens Steel Co.
Rice Barton Corporation
Shartle Brothers Machine Co.
Valley Iron Works Co.

BELTING
Alexander Bros. Belting Co.
Allis-Chalmers Mfg. Co.
Goodrich, B. F., Co.
The Goodyear Tire & Rubber Company
Link Belt Company

BIN DISCHARGERS
Hoffi Company, Inc.
Stephens-Adamson Mfg. Co.

BINS, STORAGE
The Marietta Concrete Corp.

BLEACHING AGENTS
E. I. du Pont de Nemours & Co., Inc.
General Dyestuff Corp.
Rohm & Haas Co.
Virginia Smelting Co.

BLEACHING APPARATUS
E. D. Jones & Sons Co.
Perkins & Sons, Inc., B. F.
Moore & White Co.
Niagara Alkali Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

BLOW PIPES & FITS
Carthage Machine Co.
Kalamazoo Tank & Silo Co.
Moore & White Co.
Murray Mfg. Co., D. J.
Walworth Company

BOILERS
Babcock & Wilcox Co.
Combustion Engineering-Superheater, Inc.

BOTTOMS
Kalamazoo Tank & Silo Co.
Valley Iron Works Co.

BOXBOARD SCALES
Thwing-Albert Instrument Co.

BRUSH ROLLS
M. W. Jenkins Sons, Inc.
Gus Reidel & Son

BRUSHES
M. W. Jenkins Sons, Inc.
Gus Reidel & Son
The Sandy Hill Iron & Brass Works
Smith & Winchester Mfg. Co.

BURSTING TESTERS
B. F. Perkins & Son Inc.
Testing Machines, Inc.

CALENDERS
The Bagley & Sawall Company
Beloit Iron Works
Black Clawson Company
Downingtown Mfg. Co.
Farrel-Birmingham Co., Inc.
Lobdell United Co.
Edward J. McBride
The Moore & White Co.
Perkins & Sons, Inc., B. F.
Rice Barton Corporation
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John

CARRIER ROPE
Williams-Gray Co.

CASEIN
American Cyanamid Co. Industrial Chem. Div.
Bunge Pulp & Paper Co.
Hercules Powder Co.

CASTINGS
Appleton Machine Co.
The Bagley & Sawall Company
Black Clawson Company
Babcock & Wilcox Co.
Carthage Machine Co.
Dilts Machine Works
Downingtown Mfg. Co.
Farrel-Birmingham Co.
Hamblett Machine Co.
Lobdell United Co.
Magnus Metal Corp.
Michigan Steel Casting Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Walworth Company

CENTRIFUGAL MACHINERY
Bird Machine Co.

Nichols Engrg. & Research Corp.
Ross, J. O., Engrg. Co.
Shartle Brothers Machine Co.

CHAINS
Jeffrey Mfg. Co.
Stephens-Adamson Mfg. Co.

CHEMICAL COTTON PULP
Hercules Powder Co.

CHEMICALS
American Cyanamid Co., Industrial Chem. Div.
Ansul Chemical Co.
Bunge Pulp & Paper Co.
Calco Chemical Co.
Calgon, Inc.
Diamond Alkali Co.
Dow Chemical Company
E. I. du Pont de Nemours & Co., Inc.
General Dyestuffs Corp.
Geigy Co., Inc.
B F. Goodrich Chemical Co.
Gottesman & Co.
Hercules Powder Co.
Hooker Electrochemical Co.
The Kinsley Chemical Company
Monsanto Chemical Company
National Aluminate Corp.
Naugatuck Chemical Division of U. S. Rubber Co.
Niagara Alkali Company
Nopco Chemical Co.
Pittsburgh Plate Glass Co., Columbia Chemical Division
Reichhold Chemicals, Inc.
Rohm & Haas Co.
Virginia Smelting Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

CHESTS
The Bagley & Sewall Company
E. D. Jones & Sons Co.
Kalamazoo Tank & Silo Co.
Shartle Bros. Mch. Co.

CHIP PACKERS
Fibre Making Processes, Inc.

CLEANING MATERIALS
American Cyanamid Company Industrial Chemicals Division
Diamond Alkali Co.
The Dow Chemical Company
E. I du Pont de Nemours & Co., Inc.
General Dyestuff Corp.
Monsanto Chemical Company
Nopco Chemical Co.
Pittsburgh Plate Glass Co.
Wyandotte Chemicals Corp., J. B. Ford Division

CLUTCHES
Appleton Machine Co.
The Bagley & Sewall Company
Black Clawson Company
Farrel-Birmingham Co.
Hudson-Sharp Mch. Co.
Moore & White Co.
D. J. Murray Mfg. Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Bros. Mch. Co.
Stephens-Adamson Mfg. Co.

COATING MACHINERY
Dilts Machine Works
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
The Mayer Machine Co., Inc.
Moore & White Co.
Potdevin Machine Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corporation, John
Weber, Herman G., & Co., Inc.

COATING MATERIALS
American Cyanamid Company Industrial Chemicals Division
The Dow Chemical Co.
E. I. du Pont de Nemours & Co., Inc.
B. F. Goodrich Chemical Co.
The Goodyear Tire & Rubber Company
Hercules Powder Co.
J. M. Huber Corp.
Monsanto Chemical Company
Naugatuck Chemical Division of U. S. Rubber Co.
Nopco Chemical Co.
Pittsburgh Division, Libbey-Owens-Ford Glass Co.
Reichhold Chemicals, Inc.
Wyandotte Chemicals Corp., Michigan Alkali Div.

COGS
The N. P. Bowsher Co.

COMPLETE FOURDRINIER ROLL GRINDING
Manchester Machine Co.

COMPRESSORS
Allis-Chalmers Mfg. Co.
Nash Engineering Co.
Roots-Connersville Blower Corp.

CONDENSATE FILTERS
Hungerford & Terry, Inc.
The Permutit Company

CONDENSERS
Fibre Making Processes, Inc.

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Bird Machine Company
DeZurik Shower Company
Paper & Industrial Appliances

CONSTRUCTION CONTRACTORS
C. M. Guest & Sons

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Black Clawson Company
Dilts Machine Works
Ebasco Services
Frank W. Egan & Co.
Alvin H. Johnson & Co., Inc.
Main, Inc., Chas. T.
The Rust Engrg. Co.
Shartle Bros. Mch. Co.
J. E. Sirrine & Co.
Frank C. Vaughan
John Waldron Corp.
H. G. Weber & Co., Inc.

CONTINUOUS DIGESTER
Paper & Industrial Appliances

CONTROLLERS
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The Brown Instrument Co.

CONTROLS
The Brown Instrument Co.
Johnson Corp.
Poirier Control Co.
Shartle Bros. Mch. Co.
Stickle Steam Specialties Co.

CONVERTING MACHINERY
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Egan, Frank W., & Co.
John Waldron Corp.
Dilts Machine Works

CONVEYORS
Black Clawson Company
Jeffrey Mfg. Co.
Murray, D. J., Mfg. Co.
Ross Engineering Corp., J. O.
Shartle Brothers Mch. Co.
Stephens-Adamson Mfg. Co.

CORES
Eliasman Paper Co.
Smith & Winchester Mfg. Co.
Sonoco Products Co.

CORROSION RESISTANT
Amercoat Corporation

COTTON LINTER
Alpha Cellulose Corp.
Railway Supply & Mfg. Co.

COTTON PULP
Alpha Cellulose Corp.

COUCH ROLLS
Beloit Iron Works

COUPLINGS
The Bagley & Sewall Company
Black Clawson Company
Farrel-Birmingham Co., Inc.
E. D. Jones & Sons Co.
Lovejoy Flexible Coupling Co.
Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works
Waldron Corp., John

CRANES
Cleveland Crane & Engrg. Co.
Whiting Corp.

CURL TESTER
Thwing-Albert Instrument Co.

CUTTERS
The Bagley & Sewall Company
Beloit Iron Works
Black Clawson Company
Dilts Machine Works
Gibbs-Brower Company, Inc.
Graphic Arts International Corp.
Thomas W. Hall Co.
Harris-Seybold Co.
Jagenberg-Werke Akt. Ges.
Moore & White Co.
Perkins & Son, Inc., B. F.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
The Smith & Winchester Mfg. Co.
Taylor, Stiles & Co.

CYLINDER MOULDS
Manchester Machine Co.
Rice Barton Corporation

CYLINDERS
M. W. Jenkins Sons, Inc.

DAMPENERS
Perkins & Son, Inc., B. F.
Valley Iron Works Co.

DECKLE WEBBING
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Of PAPER TRADE JOURNAL, published weekly at East Stroudsburg, Pa., for October 1, 1951.

1. The names and addresses of the publisher, editor, managing editor, and business manager are: Publisher, George E. Lockwood, 15 West 47th st., New York 19, N. Y.; Editor, Henry J. Perry, 15 West 47th st., New York 19, N. Y.; Managing Editor, K. E. Thuemmes, 15 West 47th st., New York, N. Y.; Business Manager, Arthur E. Gordon, 15 West 47th st., New York 19, N. Y.

2. The owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.) Lockwood trade Journal Co., Inc., 15 West 47th st., New York 19, N. Y. Stockholders: Geo. E. Lockwood, 15 West 47th st., New York 19, N. Y.; A. J. Pearson, 15 West 47th st., New York 19, N. Y.; Solomon Mayer, 15 West 47th st., New York 19, N. Y.; John Banninga, 15 West 47th st., New York 19, N. Y.; T. R. Lasser, 15 West 47th st., New York 19, N. Y.; Mrs. Marion C. Zabriskie, 15 West 47th st., New York 19, N. Y.; George Saxe Macdonald Trust, Bankers Trust Co., 16 Wall st., New York 5, N. Y.; Geo. E. Lockwood, J. K. Lasser, 15 West 47th st., New York 19, N. Y., Trustees.

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5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the twelve months preceding the date shown above was 6215. (This information is required from daily, weekly, semiweekly and triweekly newspapers only.)

ARTHUR E. GORDON,
(Signature of Business Manager.)

Sworn to and subscribed before me this 2nd day of October, 1951.

JACK EDELSTEIN,
(Seal) Notary Public, New York County.
Bronx Co. Clks. No. 3; N. Y. Co. Clks. No. 03-614-7100. Term expires March 30, 1952.

DE-INKING
Dilts Machine Works
General Dyestuff Corp.
Kinsley Chemical Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

DEINKING CHEMICALS
E. I. du Pont de Nemours & Co., Inc.
General Dyestuff Corp.
Kinsley Chemical Co.
Nopco Chemical Co.

DE-MINERALIZING EQUIPMENT
Hungerford & Terry, Inc.
The Permutit Company

DEMULSIFIERS
Wyandotte Chemicals Corp., Michigan Alkali Div.

DENSOMETERS
Bunge Pulp & Paper Co.
W. & L. E. Gurley

DESIGN CONSTRUCTION
Ebasco Services

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American Cyanamid Company Industrial Chemicals Division
Calgon, Inc.
Diamond Alkali Co.
General Dyestuff Corp.
Monsanto Chemical Company
Nopco Chemical Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

DEWAXING CHEMICALS
American Cyanamid Company Industrial Chemicals Division
General Dyestuff Corp.
Nopco Chemical Co.

DIFFERENTIAL SCALES
Thwing-Albert Instrument Co.

DIGESTERS CIRCULATING SYSTEMS
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DIGESTERS
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Blaw Knox Company
Chicago Bridge & Iron Co.
Combustion Engineering-Superheater, Inc.
Lukenweld
Paper & Industrial Appliances
Pusey & Jones Corp.

DISPERSING AGENTS
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Diamond Alkali Co.
General Dyestuff Corp.
Monsanto Chemical Company
National Aluminate Corp.
Nopco Chemical Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

DOCTORS
The Bagley & Sewall Company
Bird Machine Company
Black Clawson Company
Downingtown Mfg. Co.
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Lodding Engineering Corp.
The Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

DOCTOR BLADES
The Bagley & Sewall Company
Bird Machine Company
Lodding Engrg. Corp.
The Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Simonds Saw & Steel Co.

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Red-Ray Mfg. Co., Inc.
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The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

DRILLED SUCTION COUCH ROLLS
Manchester Machine Co.

DRILLED SUCTION DRUM ROLLS
Manchester Machine Co.

DRIVES
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Appleton Machine Co.
The Bagley & Sewall Company
Beloit Iron Works
Bird Machine Co.
Black Clawson Company
Dilts Machine Works
Downingtown Mfg. Co.
Fairbanks, Morse & Co.
Farrel-Birmingham Co.
Jeffrey Mfg. Co.
General Electric Company
Gibbs-Brower Company, Inc.
Moore & White Co.
Murray, D. J., Mfg. Co.
Pusey & Jones Corp.
Rice Barton Corporation
T. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Bros. Mch. Co.
Stephens-Adamson Mfg. Co.
Valley Iron Works Co.
Westinghouse Electric Corp.

DRUM WINDERS
Manchester Machine Co.
Rice Barton Corporation

DRYER DRAINAGE
Stickle Steam Specialties Co.

DRYER ROLL PYROMETER
Thwing-Albert Instrument Co.

DUSTERS
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Downingtown Mfg. Co.
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M. W. Jenkins Sons, Inc.
E. D. Jones & Son Co.
Moore & White Co.
D. J. Murray Mfg. Co.
John Waldron Corp.

DUSTING BRUSHES
M. W. Jenkins Sons, Inc.

DYESTUFFS
American Cyanamid Company
Calco Chemical Div.
Bunge Pulp & Paper Co.
Ciba Company
E. I. du Pont de Nemours & Co., Inc.
Geigy Co., The
National Aniline Division, Allied Chemical & Dye Corp.

ELECTRIC HYGROMETER
Thwing-Albert Instrument Co.

EMBOSSING MACHINES
Dilts Machine Works
Egan, Frank W., & Co.
John Waldron Corp.

EMBOSSING ROLLS
The Appleton Machine Co.
Gibbs-Brower Company, Inc.
Holyoke Machine Co.
Northern Engraving & Mch. Co.
B. F. Perkins & Son, Inc.
John Waldron Corp.
Wheeler Roll Co.

EMULSIFIERS
General Dyestuff Corp.
Nopco Chemical Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp.

ENZYMES
Rohm & Haas Co.
Vanderbilt Co., R. T.

EVAPORATORS
Davis Engrg. Corp.
Goslin-Birmingham Mfg. Co., Inc.
Murray, D. J., Mfg. Co.
Swenson Evaporator Co., Div. of Whiting Corp.

EXPANDERS
Mount Hope Machinery Co.

FANS
General Electric Co.
B. F. Perkins & Son, Inc.
Ross Engineering Co., J. O.

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Hofft Company, Inc.
Jeffrey Mfg. Co.
Merrick Scale Mfg. Co.
The Permutit Company
Stephens-Adamson Mfg. Co.

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Appleton Woolen Mills
Asten-Hill Mfg. Co.
Draper Bros. Corp.
Huyck & Son, F. C.
Lockport Felt Co.
Morey Paper Mill Supply Co.
Shuler & Benninghofen
Waterbury Felt Co.
Waterbury, H., & Sons Co.
Williams-Gray Co.

FELT CLEANERS
Calgon, Inc.
General Dyestuff Corp.
Nopco Chemical Co.

FELT CONDITIONERS
Bird Machine Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works

FELT GUIDES
Black Clawson Company
Frank W. Egan & Co.
Gilbert & Nash Co.

Moore & White Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Waldron Corp., John

FILLERS
American Cyanamid Company, Industrial Chemicals Division
A. M. Meincke & Son, Inc.
Vanderbilt Co., R. T.
Wyandotte Chemicals Corp., Michigan Alkali Div.

FILTERS
Bird Machine Company
Holyoke Machine Co.
J. M. Huber Corp.
Hungerford & Terry, Inc.
Johnson Corp.
Moore & White Co.
J. O. Ross Engrg. Corp.
The Sandy Hill Iron & Brass Works
Walworth Company

FITTINGS
The Bagley & Sewall Company
Crane Company
Shartle Bros. Mch. Co.
Walworth Company

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Jeffrey Mfg. Co.
Lovejoy Flexible Coupling Co.
John Waldron Corp.

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The Goodyear Tire & Rubber Company
Norton Co.

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Lukens Steel Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works

FORK LIFT TRUCKS
Clark Equipment Company Industrial Truck Division
Elwell Parker Elec. Co.
Towmotor Corp.

FORMATION TESTERS
Thwing-Albert Instrument Co.
Williams Apparatus Co., Inc.

FOURDRINIERS
Beloit Iron Works
Black Clawson Company
Downingtown Mfg. Co.
The Moore & White Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

FREENESS TESTERS
Testing Machines, Inc.
Williams Apparatus Co.

FURNACES
Hofft Company, Inc.

GASKETS
The Goodyear Tire & Rubber Company

GEARS
The Bagley & Sewall Company
Black Clawson Company
De Laval Steam Turbine Co.
Downingtown Mfg. Co.
Frank W. Egan & Co.
Farrel-Birmingham Co.
E. D. Jones & Sons Co.
Moore & White Co.
D. J. Murray Mfg. Co.
Rice Barton Corporation
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Struh Process Steel Co.
Valley Iron Works Co.
Westinghouse Electric Corp.
Western Gear Works

GRAPPLES
Blaw-Knox Company

GRAVITY FILTERS
Holyoke Machine Co.

GRINDERS
Carthage Machine Co.
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Lobdell United Co.
Norton Company
Samuel C. Rogers and Company
The Sandy Hill Iron & Brass Works

GRINDING WHEELS
Norton Company
Simonds Abrasive Co.

GUIDES
The Bagley & Sewall Company
Egan, Frank W., & Co.
Gilbert & Nash Co.
The Moore & White Co.
Mount Hope Machinery Co.
Rice Barton Corporation
John Waldron Corp.

GUMMING MACHINES
Dilts Machine Works
Egan, Frank W., & Co.
The Sandy Hill Iron & Brass Works

GUMS
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Stein-Hall Co., Inc.

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Fibre Making Processes, Inc.
Stickle Steam Specialties Co.
Westinghouse Electric Corp.

HEATING, VENTILATING & AIR CONDITIONING
The Appleton Machine Co.
E. D. Jones & Sons Co.
General Electric Co.
D. J. Murray Mfg. Co.
Red-Ray Mfg. Co., Inc.
Ross Engineering Corp., J. O.
Stickle Steam Specialties Co.
Valley Iron Works Co.

HOSE (Air, Water, Suction, etc.)
The Goodyear Tire & Rubber Company

HUMECTANTS
Aktivin Division, Heyden Chemical Corp.
Napco Chemical Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

IMPREGNANTS
American Cyanamid Company, Industrial Chemicals Division
B. F. Goodrich Chemical Co.

INDENTING MACHINES
Dilts Machine Works

INDUSTRIAL TRACTORS
Clark Equipment Company, Industrial Truck Division
Towmotor Corp.

INKOMETER
Thwing-Albert Instrument Co.

INSTRUMENTS, TESTING AND MEASURING
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Bumps Pulp & Paper Co.
Cambridge Instrument Co.
General Electric Company
W. & L. E. Gurley
B. F. Perkins & Son
Photovolt Corp.
Taylor Instrument Cos.
Testing Machines, Inc.
Thwing-Albert Instrument Co.
Williams Apparatus Co.

JOINTS
The Bagley & Sewall Company
Beloit Iron Works
Johnson Corp.
Lovejoy Flexible Coupling Co.
Rice Barton Corporation
Shartle Bros. Mch. Co.

JORDAN FILLINGS
Appleton Machine Co.
Bahr Brothers Mfg. Co.
E. D. Jones & Sons Co.
Shartle Bros. Mch. Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

KNIVES
Black Clawson Company
Dilts Machine Works, Inc.
Hamblet Machine Co.
Heppenstall Company
E. D. Jones & Sons Co.
The Moore & White Co.
Simonds Saw & Steel Co.
Taylor Stiles & Co.
Valley Iron Works Co.

KNOTTERS
Fibre Making Processes, Inc.

KRAFT WRAPPING PAPERS
Canadian Newsprint Supply Co.

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Thwing-Albert Instrument Co.

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Bauer Brothers Co.
Bird Machine Company
Dilts Machine Works
W. & L. E. Gurley
Egan, Frank W., & Co.
E. D. Jones & Sons Co.
Taylor Instrument Companies
Testing Machines, Inc.
Valley Iron Works Co.
John Waldron Corp.
Williams Apparatus Co., Inc.

LAMINATING MACHINES
The Bagley & Sewall Company
Dilts Machine Works
Egan, Frank W., & Co.
Rice Barton Corporation
John Waldron Corp.

LAY BOYS
Dilts Machine Works
Gibbs-Brower Company, Inc.
Hamblet Machine Co.
Moore & White Co.

When Moleskins First Met
PIGSKIN

The football teams of nineteen-three
Were something to behold!
They punted, or they bucked the line
Until the ball was goaled.

The forward pass was called a foul
They had no T formation,
They boasted they were "iron men",
The "subs" were on vacation.

Eleven men no longer play
The game from start to finish,
They change the line-up frequently
Their drive must not diminish.

That's not the way with Draper Felts
By gorry, they are "beauts!"
If you are wise as we surmise —
Accept no substitutes!

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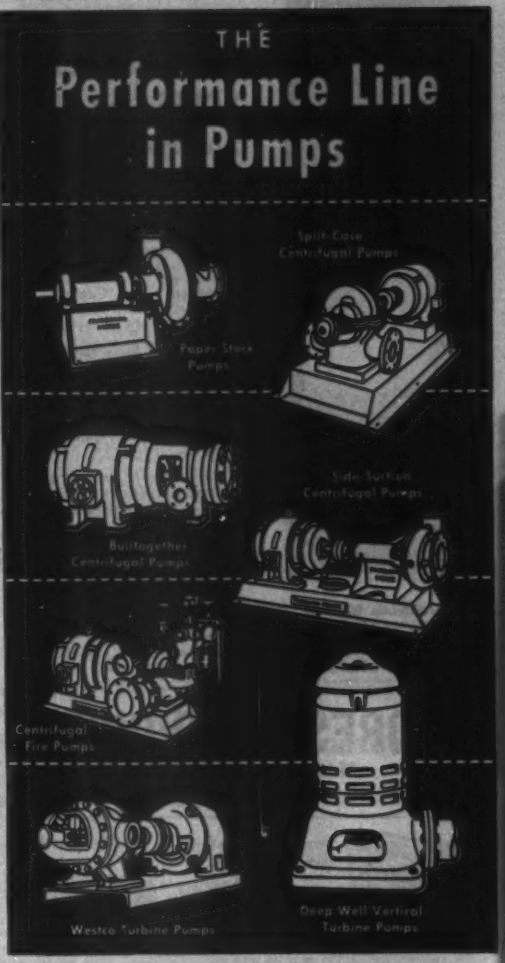

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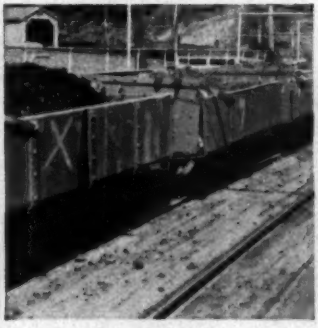

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